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Occupational Identification: A Study of Undergraduate College Students

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CHAPTER ONE: STATEMENT OF THE PROBLEM

A. INTRODUCTION AND PURPOSE OF THE RESEARCH PROJECT

Colleges and universities have often been the most accessible training ground for apprentice researchers. In spite of the immense amount of time and effort that has been expended in researching college students, however, our knowledge of the impact of the college environment and experience is far from overwhelming. As Kenneth Feldman (1969: 226) concluded from his extensive analysis and critique of this research:

> The domain of research circumscribed by the study of the impacts of colleges on students has accumulated a myriad of correlations and associations, but its storehouse of knowledge about conditions, processes, dynamics, and mechanisms is small. At this point, the field knows more than is often believed, but less than it might.

Previous studies have largely focused on student attitudes, values, and related attributes. Following the suggestion of Feldman, the present research project will attempt to analyze the process of occupational identification within an academic setting. We will use the term "identification" to refer to the process whereby an individual student gradually acquires the motives, values, and ideology of a particular major or related occupation. This concept would seem to be especially useful in examining the well-documented fact that some students remain

committed to their original occupational goals, while many others change their majors and career plans during their college years. This thesis project will also attempt to analyze the relationship between an individual's degree of identification with his major field and his more generalized self-concept. Thus the general purpose of this thesis is to investigate the extent to which specific variations among college students can be explained in terms of the process of commitment to occupational identities within an acedemic setting.

B. OVERVIEW OF THE RESEARCH PROJECT

There are numerous studies in the educational and psychological literature which show that many students change their major field of study during their college years. Most of this research, however, has been of a largely descriptive nature. The majority of these studies have been conducted by college administrators and counsellors who generally show little or no interest in analyzing the problem within a sociological framework. Nevertheless, a brief review of this literature will be useful in presenting the general focus and nature of the research project.

Most researchers have reported that between one-third and two-thirds of their student populations change either their major field or related occupational plans before they graduate from college (Davis, 1965; Feldman, 1970). Most students switch majors during their freshman or sophomore years, and relatively few changes occur in the last two years of college (Pierson, 1962; Strong, 1952; and Warren, 1961). A number of researchers have also noted that the majority of changes are accounted for by persons leaving the physical and natural sciences for the humanities and social sciences (Cole, 1964; Pierson, 1962). Akenson and Beecher (1967: 176) found that this general trend from the more technical subjects toward the humanistic disciplines reflected a growing social consciousness among college students in recent years. They reported that this trend was independent of the individual aptitudes of the various students, and they found no evidence to support the notion that these students were simply leaving more difficult fields of study for ones that were less demanding.

Other investigators have attempted to compare the personal characteristics and values of students who change majors and those who do not. There is substantial evidence that students who achieve higher grades are less likely to change majors or occupational preferences than students who receive lower grades (Davis, 1966; Warren, 1961) Other studies have generally confirmed the hypothesis that students who abandon their original college curricula or occupational choices are significantly different in terms of general aptitudes and interests from those students who remain in the field (Petrik, 1967; Rosenberg, 1957; and Strong, 1952). Both Davis (1965) and Werts (1967) also found that persons who change their majors generally migrate to those fields whose students are likely to share their vocational interests and attitudes. Other studies (for example, Cole, Wilson and Tiedeman, 1964), however, have reported that the defectors are not only atypical in terms of their original majors, but also are significantly different from students in their new field. Thus the evidence to support the hypothesis that students generally change to fields that are more compatible with their personal characteristics and occupational goals is inconclusive.

Surprisingly few studies have attempted to isolate specific reasons which students give to explain their decision to change their field of study while they are attending college. Holland and Nichols (1972: 277) found that a general disinterest in the

course content and the lack of future occupational possibilities were the two most frequently cited explanations for changing majors among his sample of college students. He also reported that professors and fellow students seem to play only a minor role in affecting this decision by the individual student. In his research of students at Michigan State University, Pierson (1962) reported that many students felt that their original majors were chosen without sufficient knowledge of other curricular or vocational opportunities. When exposed to new information about other fields and occupational choices during their early years in college, many of these students thus decided to change their majors. Although these two studies provide some interesting insights, neither of these researchers attempted to relate his various findings to the personal characteristics or occupational attitudes of the students.

With a few noteworthy exceptions (for example, Holland and Nichols, 1972; Warren, 1961; and Werts, 1967) most of the studies discussed thus far lend considerable support to Feldman's criticism (1969:211) that research on college students frequently lacks a theoretical focus:

> To begin with, many college studies seem to lack any explicit theory concerning which dimensions of students are to be affected by colleges, or the way these effects are produced. They say something like the following: here are some interesting dimensions that may (or may not) be affected by the college experience; let's compare these variables across college-class levels.

Thus predictions about the nature, direction, and amount of change

are rarely made. Lacking a theoretical framework to integrate their research project, these studies often result in disparate and unrelated findings which are not only difficult to interpret, but which are of virtually no significance beyond the immediate college population under study. Thus, the following section of this paper will be devoted to various theoretical orientations and related research findings that are applicable to the study of identification and changes in major among college students.

C. THEORETICAL ORIENTATIONS AND RELATED RESEARCH

A review of the psychological and sociological literature reveals four major theoretical viewpoints which have been postulated by various authors to explain occupational decision-making. Although these general approaches sometimes tend to overlap, we will attempt to distinguish and clarify their major assumptions and concerns in the following discussion. We will also analyze the relevant findings of the various approaches in terms of this particular research project.

Impulse theory, developed from Freudian thought, maintains that occupational choices are the result of internal, unconscious motivations. For example, the psychoanalytic point of view would suggest that individuals who become surgeons, dentists, butchers, and prison guards are actually driven by very strong sadistic impulses. It is obvious that the Freudian theory that persons tend to sublimate their sexual and aggressive instincts through legitimate occupations has no practical significance for the present study. It is nevertheless important to recognize that alternative explanations have been proposed and generally accepted by many vocational psychologists and guidance counsellors.

Dissatisfaction with the Freudian emphasis on the unconscious and irrational elements of human nature has led other theorists to formulate a theoretical framework which posits that the individual makes rational decisions and compromises in terms of the occupational opportunities available to him. Ginzberg (1951), for exam-

ple, developed the basis for a developmental theory in which occupational decision-making progresses through three distinct phases: childhood fantasy, adolescent exploration, and realistic maturity. As is often fairly typical of this literature in general, the career patterns and choices of males have been more thoroughly analysed than those of females. Developmental orientations and career pattern studies tend to rely on a large amount of longitudinal data gathered from extensive interviews and case study materials. Unfortunately, the cross-sectional type of analysis employed in the present research project is largely incompatible with the developmental theory of occupational choices (see Ginzberg, 1951: 26).

A more contemporary personality-oriented theory has been formulated by Donald E. Super (1957, 1970). He proposes that a person will tend to select a future career which involves roles and behaviors that generally reflect the kind of picture he has of himself. As such, an individual's self-concept helps determine the occupations he prefers, the type of training he undertakes, and the degree of satisfaction which he experiences from his occupation (Super, 1970: 108). Warren (1961) attempted to examine this theory by testing the hypothesis that changes in field of specialization, or major, are likely to result when a discrepancy exists between a person's self-concept and occupational role expectations. Warren found only very limited evidence to support this specific hypothesis. He thus concluded that such an inconsistency was only one of

many possible factors that may induce students to change their major field of study.

A similar study by Adamek and Goudy (1966) was designed to test the hypothesis that persons with strong self-concepts would be less likely to switch majors than students with weak self-concepts. These researchers also failed to find convincing evidence to support the self-concept theory of occupational choice. They concluded that a person with an unstable self-concept may remain in his original major because he lacks a sense of direction or alternate goals. On the other hand, a person with a strong self-concept may simply be more likely to realize that his original major did not meet his expectations and thus decide to change fields. This study by Adamek and Goudy also suggested some alternative explanations which will be discussed later in the research dealing with the occupational identification frame of reference.

A more sociological point of view is based on the idea that occupational choices are largely determined by social and economic conditions beyond the control of the individual. Referred to by some authors (Ginzberg, 1951; Super, 1970) as "accident theory," this perspective looks upon vocational choices as being more directly influenced by "accidents of birth" rather than the result of a process of free, rational decisions. Sex roles, social class, religious affiliation, racial or ethnic group membership, and fluctuations in various sectors of the job

market are frequently cited as the most important variables in determining an individual's career.

As Rosenberg (1957: 48) points out, different value orientations and career opportunities play a significant role in the occupational choices of males and females.

> In the college community no factor is so important for one's occupational future as socially defined sex roles. In almost every aspect of occupational values and choices, men and women tend to differ radically. To a minor extent these differences are explicable in terms of the physical requirements of the occupation--e. g., farming--but to an overwhelming extent, in the middle-class white collar occupations chiefly selected by college students, it is entirely a question of how American society defines the place of men and women in the occupational structure.

There is considerable evidence that variations in sex roles influence educational and occupational aspirations. Several recent studies (Holland and Nichols, 1972; Werts, 1966) have shown that sex status is an important variable to be considered in attempting to analyze explanations for the incidence of major-switching among college students.

There are also extensive research findings to confirm the significance of socio-economic status in terms of its relationship to educational and occupational preferences and goals (Kohn and Schooler, 1969; Petrik, 1967; Sewell, 1957; Werts, 1966). In an extensive study of male freshmen and sophomore students, Werts (1967) demonstrated the usefulness of incorporating social class variables in the analysis of career changes during college. He found that students tend to switch their occupational prefer-

ences to career choices that are more consistent with their social class background. These studies would appear to have important implications for our present research. Although this study is principally concerned with changes in major field of study, there is considerable evidence that such changes are influenced by decisions about future occupations and careers.

The literature on educational and occupational status attainment (see, for example, Blau and Duncan, 1967; Sewell, Haller, and Portes, 1969) suggests that some relevant background and demographic variables should be included in such studies in order to avoid spurious or misleading interpretations of the data. Although no specific hypotheses have been formulated in this case, we will attempt to control for the following variables in our analysis: age, sex, religious affiliation, population of home town, size of high school from which the student graduated, and marital status. The nature of our problem would also suggest the importance of controlling for some variables specifically related to the college environment: attendance at a previous college before entering Eastern Illinois University, year in college, and place of residence during college. Foreign students will be excluded from this study in order to avoid the influence of confounding factors.

Thus far we have discussed some theoretical viewpoints and empirical findings which are related to the present study. In the next section we will explain the basic framework of occupational identification and then present the hypotheses which have been derived from this perspective and the previous research evidence.

CHAPTER TWO: THEORETICAL PERSPECTIVE

A. OCCUPATIONAL IDENTIFICATION: A FRAMEWORK FOR THE ANALYSIS OF UNDERGRADUATE CAREER DECISIONS

The concept of identification has had a long and varied career. Originally proposed by Freud to explain sex-role development, it has been subjected to so many criticisms and revisions that it bears little resemblance to its previous formulation. Closely akin to role theory, this concept has been used to overcome some of the deficiencies of the symbolic interactionist perspective. Nelson Foote (1951), for example, suggests that the process of identification provides the basis for a situational theory of motivation which is generally lacking in the interactionist orientation.

Identification with other individuals or groups implies that these persons have become significant others, and that these groups form his general frame of reference. As the individual gradually identifies himself with these significant others, he becomes more amenable to their influence. Their motives, norms, and values gradually become his own. This gradual commitment of one's own self-concept to particular social identities serves as the basis for meaning, stability, and prediction of an individual's behavior. As Foote (1951: 21) concludes:

> One has no identity apart from society; one has no individuality apart from identity. Only by making use of this concept can we account for motivation in terms consistent with the only social psychology that truly deserves the name 'social.'

During the 1950's Howard S. Becker and James Carper (1956a; 1956b; and 1957) interviewed students doing their graduate work in three representative departments (physiology, philosophy, ane mechanical engineering) at the University of Illinois. Their observations and analysis led them to construct a general framework for the elements and mechanisms involved in the development of identification with an occupation. Although this model was originally developed from the study of graduate students, with a few modifications it can be applied to students on the undergraduate level.

After a student has decided on his future career and declared his major, he is gradually exposed to certain knowledge and skills which in a certain sense tend to elevate him above other persons not in that field. This feeling of specialization is often accompanied by a sense of personal accomplishment and pride in one's new skills which help to strengthen his loyalty to the discipline. By a process of reinforcement from his teachers, colleagues, and peers, the individual progressively becomes more committed to his field, specialty, and his department. Occupational identification gradually results in the internalization of the folkways, labels, rationalizations, and ideology peculiar to his discipline. More and more the student begins to anticipate the day when others will refer to him as "chemist," "teacher," "sociologist," or "accountant." The transformation of the student's self-concept into an occupational identity is now complete (Slawski, 1969: 27).

Although the present study of undergraduate career decisions will emphasize variables related to the process of identification with an occupation, the research design itself is not temporally longitudinal. Hence, actual analysis will proceed in terms of the various elements and mechanisms involved in the identification process. Within this context, the model proposed by Becker and Carper (1956a and 1956b) will be especially useful. In their article, "The Development of Identification with an Occupation," they discuss six elements which are useful in analyzing the process of work identification: development of problem interest, internalization of motives, pride in new skills, investment of time and energy, acquisition of ideology, and sponsorship. These various mechanisms tend to foster commitment to the discipline and help to solidfy occupational attitudes and loyalties. Through this process the student's self-conception is effectively transformed into a new social identity. His behavior thus acquires a basis for meaning, stability, and prediction.

B. HYPOTHESES

The purpose of this thesis project is to analyze some specific hypotheses derived from the theoretical perspective developed by Becker and Carper. Our analysis will attempt to examine various factors related to the identification process, the effects of this process on the student's self-conception, and the results of the failure to identify with a future career or occupation. Our hypotheses will thus be concerned with three dependent variables: identification with major, strength of self-concept, and plans to change majors.

I. IDENTIFICATION WITH MAJOR

Implicit in the model developed by Becker and Carper is the idea that identification will increase as a function of the degree of exposure and training a student has had in his major field and related vocational plans. As Hughes (1958: 26) points out: "In general, we may say that the longer and more rigorous the period of initiation into an occupation, the more culture and technique are associated with it, and the more deeply impressed are its attitudes upon the person." The first major hypothesis which we will investigate is as follows:

I. PERSONS WITH MORE EXPERIENCE IN THEIR MAJOR FIELD OF STUDY WILL MORE HIGHLY IDENTIFY WITH THEIR MAJOR THAN PERSONS WITH LESS EXPERIENCE.

Our previous review of the literature has suggested that other variables may significantly influence the identification

process. By examining the effects of the other variables we hope to further extend our knowledge regarding occupational identification among undergraduate students. We will be especially interested in four sub-hypotheses involving the social class background of the student, the structure of the different major fields, the size of the various departmental majors, and the effect of previous changes in major on a student's identification with his present major.

The study by Werts (1966) has demonstrated the importance of considering the social class background of college students when analyzing the influence of specific majors and different types of students. His findings would tend to suggest the following sub-hypothesis:

> IA. Students from higher class backgrounds will more highly identify with their majors than students from lower class backgrounds.

The rationale underlying this viewpoint is that students from varying class backgrounds acquire different educational and occupational aspirations long before they enter college. Persons from higher class families are more likely to have acquired the ambitions and opportunities to pursue upper class occupations and careers than students from lower class backgrounds. Kohn (1969) also points out that upper class life styles tend to be more consistent with the dominant values of higher education than lower class life styles.

Adamek and Goudy (1967) found somewhat tentative evidence to support another hypothesis. Their data tend to suggest that the

extent to which a major field is structured affects the degree of identification with that field of study (1967: 195). These findings were based on a random sample of juniors from Purdue University whose emphasis is primarily in the area of career-oriented fields of science and related technical disciplines. Adamek and Goudy suggested that a future study at a different type of school (for example, a small liberal arts college) might attempt to replicate their findings. The present research project is partially an attempt to find out whether similar results will be obtained at Eastern Illinois University--a smaller midwestern university whose emphasis is primarily on the fields of education and the liberal arts.

A subsequent study in a non-academic setting (Adamek and Dager, 1968) confirmed the hypothesis that institutional identification is facilitated by a relatively structured social environment in which role expectations, appropriate behaviors, and future goals are clearly defined. Hence, a second sub-hypothesis has been formulated:

> 1B. Students majoring in more structured fields will more highly identify with their majors than students in fields that are less structured.

The theoretical basis for this prediction is that different fields have different types of organizational requirements and goals. A structured major would be one that is characterized by a fairly rigid sequence of courses whose main purpose is to develop task-oriented skills and a practical orientation. Future occupations are fairly well defined and comparatively narrow in scope. In

certain cases, the individual is awarded a license or certificate which formally admits him as a member of a particular occupation (Adamek and Goudy, 1966: 195; Mack, 1957; Slawski, 1969). Thus, this sub-hypothesis would assert that clarity of organizational structure and role expectations characteristic of such fields as business, education, and science would be more likely to foster occupational identification than the academic majors associated with the humanities and social sciences.

The model developed by Becker and Carper may need to be modified when applied to the analysis of students on the undergraduate level. By the time a student has entered graduate school, he may be familiar with a number of professors in his major department whom he has come to know during his undergraduate career. Through his work as a graduate assistant he is likely to develop closer relationships with the professors in his department. In writing his thesis or dissertation, the guidance and assistance of the professors on his committee will become an essential part of his graduate work. Perhaps more important, these professors often provide important recommendations for future educational or occupational opportunities. Becker and Carper ((1956: 298) elaborate the importance of sponsorship in the development of occupational identification among graduate students:

> When a person is sponsored into a first position in the work world after leaving graduate school, he feels obligated to act as a true member of the occupation and remain within it, because of the trust placed in him by his sponsor. The creation of this obligation solidifies occupational attitudes and

loyalties--the individual feels he must remain what he has become in order not to let down his sponsor--and thus strengthens the identification with occupational title and ideology.

On the undergraduate level, however, faculties are often so large that it is very difficult for students to get to know their professors outside of the classroom. When professor-student encounters do take place, they tend to be more on the routine and impersonal level. In smaller departments, however, undergraduate students would have a better opportunity to get to know their professors on a more personal level. Thus, smaller departments would seem to be more likely to foster the type of elements and mechanisms which are most conducive to the development of occupational identification. Our third sub-hypothesis is as follows:

IC. Students majoring in smaller departments will more highly identify with their majors than students in larger departments.

Our previous review of the literature suggests one additional variable which should be incorporated into our analysis. Most studies have shown that students who change majors are somewhat atypical in terms of personal characteristics, general aptitudes, and vocational interests as compared with those students who remain in their original field of study. Other researchers have attempted to determine whether these "atypical" students are eventually recruited into fields that are more compatible with their personal interests and occupational goals. As Feldman (1970: 187) has concluded, the results of these latter studies often appear somewhat inconsistent and contradictory.

In their study, Adamek and Goudy (1966: 189) found that persons who identify strongly with their major fields are much less likely to have switched majors during their college years. Unfortunately this evidence was subject to the errors of recall and ex post facto rationalizations on the part of those students who responded to questions about their previous major a year or so later after they had left that field of study (1966: 188). Although this study of Purdue University students further substantiates the previous research evidence, it sheds little light on the seemingly more relevant problem of whether students who change their majors are likely to develop the same degree of commitment as other students in their new field. This problem suggests the basis for our fourth sub-hypothesis:

ID. Students who have never changed fields will more highly identify with their majors than those students who have previous switched fields.

The rationale for this hypothesis is based on previous research studies (for example, Strong, 1952; Cole, Wilson, and Tiedeman, 1964) which have reported that students who change majors are somewhat atypical vis-à-vis a majority of the other students. According to the conclusions of these studies, the interests and attitudes of these students are such that they are likely to resist identification with any particular discipline or future occupational goals.

The previous model proposed by Becker and Carper is not very useful in clarifying this issue. However, in a related article, "Notes on the Concept of Commitment," Becker (1960) has developed

the basis for an alternative point of view. He points out (1960: 38) that some decisions are reinforced by personal and organizational commitments:

> Decisions do not of themselves result in consistent lines of action, for they are frequently changed. But some decisions do produce consistent behavior. We can perhaps account for this variety of outcomes of decisions by the proposition that only those decisions bolstered by the making of sizable side bets will produce consistent behavior. Decisions not supported by such side bets will lack staying power, crumpling in the face of opposition or fading away to be replaced by other essentially meaningless decisions until a commitment based on side bets stabilizes behavior.

These ideas help to explain the extensive evidence that freshmen and sophomores are much more likely to change majors than juniors or seniors. Parental pressures and cultural expectations require most college students to graduate within four years after entering college. Academic requirements make it virtually impossible for a student to change his major in his last year or so of college and still receive his degree within the four year period. These ideas would also suggest that later commitments to new majors will be strongly reinforced by various personal and organizational demands. We would expect that a decision to change majors would thus result in fairly consistent lines of activity which would be highly conducive to the process of occupational identification. These ideas provide the rationale for the following corollary hypothesis:

> IE. With time in major held constant, students who have changed majors will more highly identify with their present major than students who have never changed.

At first glance, this corollary hypothesis would seem to partially contradict our first major hypothesis. In the first hypothesis we have predicted that identification with major will increase as a function of the amount of experience a student has had in his major field (operationally defined as number of courses completed in present major). In the latter instance, we are attempting to investigate Becker's thesis that cultural and bureaucratic pressures will tend to increase occupational identification. Since persons who have changed majors will have spent proportionately less time in their new field of study as compared with other students, we will examine this sub-hypothesis by controlling for time in major (operationally defined as number of quarters completed since the student declared his present major).

Thus far our analysis has failed to discuss possible tensions and conflicts arising from previously acquired values or present commitment. Although Becker and Carper (1966: 290) briefly mention this issue, their discussion does not suggest any specific hypotheses. Nevertheless it is important to consider the possible influence of such variables as marriage or family attachments, external pressures to enter a certain field, occupational values, and participation in extracurricular activities during college. Since these variables are generally omitted in the theoretical model proposed by Becker and Carper, our analysis in this regard

will be more of an exploratory nature. By analyzing the impact of these variables, we expect to further supplement our knowledge of the process of occupational identification within an academic setting.

II. STRENGTH OF SELF-CONCEPT

The concept of identification also implies that commitment to particular social identities will be conducive to strengthening a persons's sense of direction and goals. This idea would seem to have important implications for the present study. The status of college students is of a necessarily temporary duration. Unless the student plans to attend graduate school, he will have to prepare himself for the prospect of finding a suitable job after graduation. This transition from the status of student to worker often increases anxiety and confusion. The process of occupational identification helps to relieve feelings of doubt and uncertainty by providing a sense of purpose and long-range goals. Following the suggestion of Adamek and Goudy (1966: 184) we will refer to this feeling of self-confidence and sense of direction as a strong self-concept. The student with a strong self-concept knows who he is and where he is going. Our second major hypothesis was previously confirmed in the study of Purdue University students (Adamek and Goudy, 1966: 194), but the relationship was not as strong as expected. It is as follows:

II. STUDENTS WHO HIGHLY IDENTIFY WITH THEIR MAJORS WILL HAVE STRONGER SELF-CONCEPTS THAN THOSE WHO DO NOT SO IDENTIFY.

It will be necessary to control a wide range of variables in this case (for example, sex, social class background, major field, length of time in major, marital status, etc.), but we will be especially interested in analyzing the relative contri-

bution of academic achievement (operationally defined as cumulative grade point average) to the strength of self-concept. Although it would appear that academic achievement is only one of a number of intervening variables, a sub-hypothesis will be formulated as follows:

> IIA. Students with rather high grade point averages will have stronger self-concepts than persons with relatively low grade point averages.

The purpose for focusing on this hypothesis is to isolate the relative contribution of academic achievement per se on the strength of a student's self-concept. As was noted previously, the theoretical framework proposed by Becker and Carper was developed from an analysis of graduate students. High academic achievement is generally a prerequisite for admission to graduate school. Once a student has been accepted, however, grades will tend to play a less significant role. For undergraduate students, on the other hand, grades are frequently the most important aspect of academic life (see, for example, Becker, Greer, and Hughes, 1968). This sub-hypothesis should enable us to determine whether the model developed by Becker and Carper is equally appropriate for the analysis of students on the undergraduate level.

Our review of the literature suggested that persons who have changed majors are somewhat different in terms of general aptitudes and vocational interests from those persons who remain in their original majors. Other studies have reported rather inconsistent findings as to whether or not these students are

eventually recruited into fields that are more compatible with their abilities and occupational goals. A study by Warren (1961) gave somewhat tentative evidence to support the conclusion that persons who change majors are more likely to experience serious discrepancies between their self-concepts and future occupational roles. This evidence would tend to suggest that persons who have changed majors may simply lack a strong sense of direction and long-range goals. Although our analysis in this regard will be of a largely exploratory nature, we hope to further clarify some of the conditions under which these varying outcomes occur.

III. PLANS TO CHANGE MAJORS

So far we have been primarily concerned with various elements involved in the identification process and the resulting influence of this process on a student's self-conception. However, the theoretical framework of occupational identification not only provides a sense of meaning and stability, but also the basis for prediction of an individual's behavior. As Becker and Carper (1956b: 347) point out in their discussion:

> If, in identifying himself occupationally, an individual exhibits an intense identification with a particular institutional position or a particular set of tasks or with both of these, movement to some other position, or movement which involves a shift in the actual job done becomes more difficult.

Unfortunately our research design does not permit us to measure student behavior directly in this case. Ideally this study would be longitudinal, but time limits have precluded this type of analysis. Our third major hypothesis will thus be concerned with a student's plans to change his major field of study, rather than the actual change itself. The ideas suggested by Becker and Carper form the basis for the following hypothesis:

> III. STUDENTS WHO HIGHLY IDENTIFY WITH THEIR MAJOR WILL BE LESS LIKELY TO PLAN ON SWITCHING MAJORS THAN STUDENTS WHO DO NOT HIGHLY IDENTIFY WITH THEIR FIELD OF STUDY.

The rationale underlying this hypothesis should be rather self-evident in light of the previous discussion. Although the study of Purdue University students by Adamek and Goudy (1966: 191)

did not directly examine this relationship, their analysis of a similar hypothesis suggests the following corollary:

> IIIA. Among students who do not highly identify with their major, those persons who have a strong self-concept will be more likely to have plans to change their majors than students who have relatively weak self-concepts.

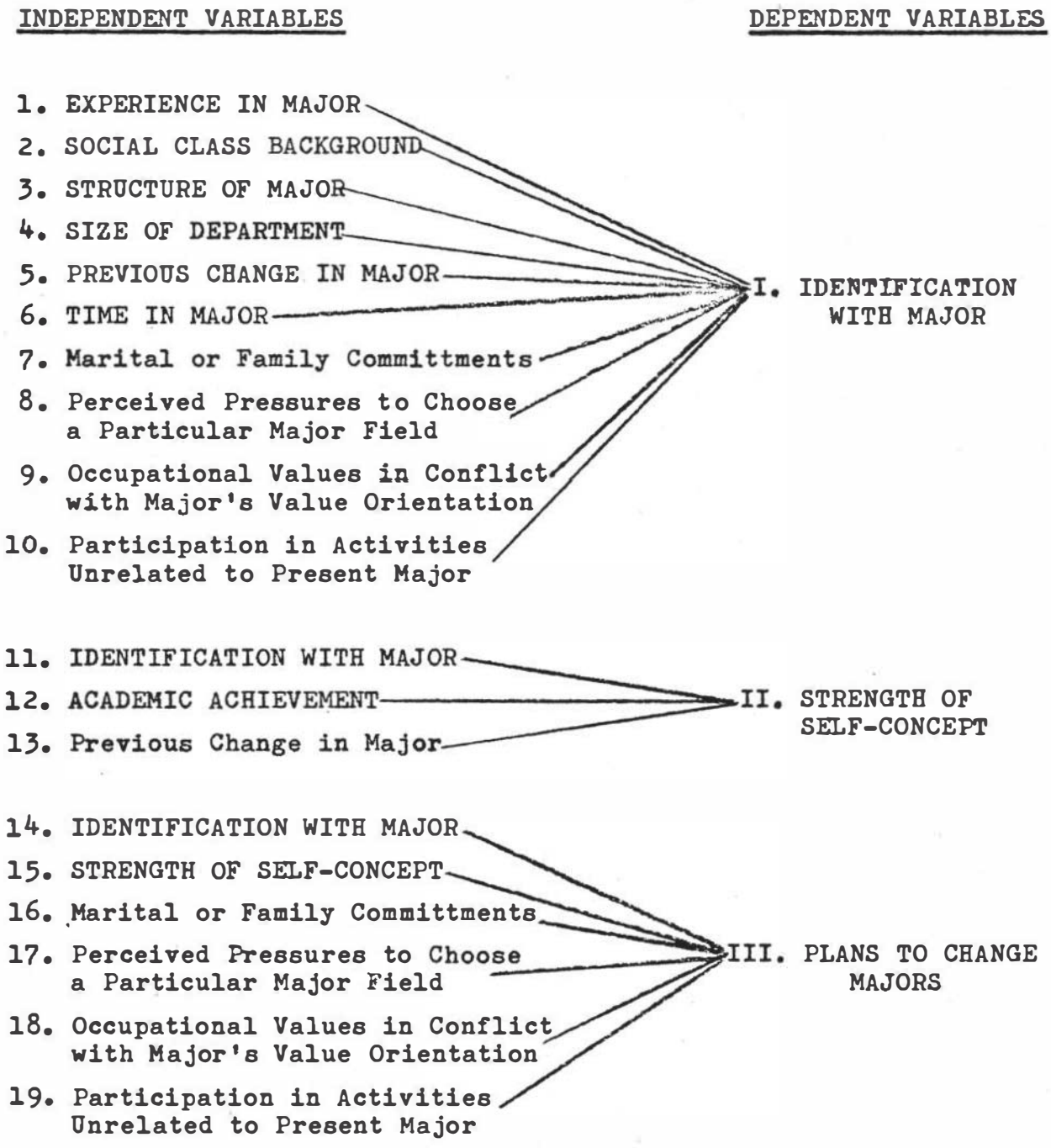
The basis for this prediction is that a person with a fairly strong sense of purpose may enter a field that does not meet his prior expectations or future goals. As a result, his strong self-concept encourages him to consider plans for entering another field that is more consistent with his academic abilities and occupational aspiriations. The student who lacks a sense of purpose and direction, however, will be less likely to consider possible alternatives to his present major even though that area of study has not been very personally rewarding.

It will be important to control for a wide range of variables in analyzing our third major hypothesis. There is considerable evidence in the sociological literature on sex roles that females are frequently the victims of a wide range of cultural contradictions regarding their future career plans (see, for example, Komarovsky, 1946 and 1950; Seward, 1970). In light of these conflicting expectations, will female students often plan on changing their majors to more stereotyped fields (for example, education and library science) even though they highly identify with their present area of study? It will also be interesting to investigate the importance of academic achieve-

ment in this regard. As we noted previously, a number of studies have shown that persons with high grade point averages are less likely to change majors than persons with relatively low grade point averages. Will students who have achieved high grades, but who generally lack a great deal of interest in their major be more intent on changing their curriculum than other students who have received lower grades, but who are very committed to their area of study? We will also pay special attention to the influence of conflicting tensions and attachments to the decision to change majors. For example, will married persons be more likely to plan to switch majors than single students? By analyzing these relationships we should be better able to assess the usefulness of applying the model developed by Becker and Carper to the study of undergraduate college students.

SUMMARY OF INDEPENDENT AND DEPENDENT VARIABLES

(Variables in formulated hypotheses are in large letters and variables in exploratory analysis are in small letters)



SUMMARY OF FORMULATED HYPOTHESES

(Major hypotheses are in large letters and sub-hypotheses are in small letters)

I. PERSONS WITH MORE EXPERIENCE IN THEIR MAJOR FIELD WILL MORE HIGHLY IDENTIFY WITH THEIR MAJORS THAN PERSONS WITH LESS EXPERIENCE. (p. 15)

IA. Students from higher class backgrounds will more highly identify with their majors than students from lower class backgrounds. (p. 16)

IB. Students majoring in more structured fields will more highly identify with their majors than students in fields that are less structured. (p. 17)

IC. Students majoring in smaller departments will more highly identify with their majors than students in larger departments. (p. 19)

ID. Students who have never changed majors will more highly identify with their majors than students who have previously changed majors. (p. 20)

IE. With time in major held constant, students who have previously switched majors will more highly identify with their present major than students who have never changed majors. (p. 21)

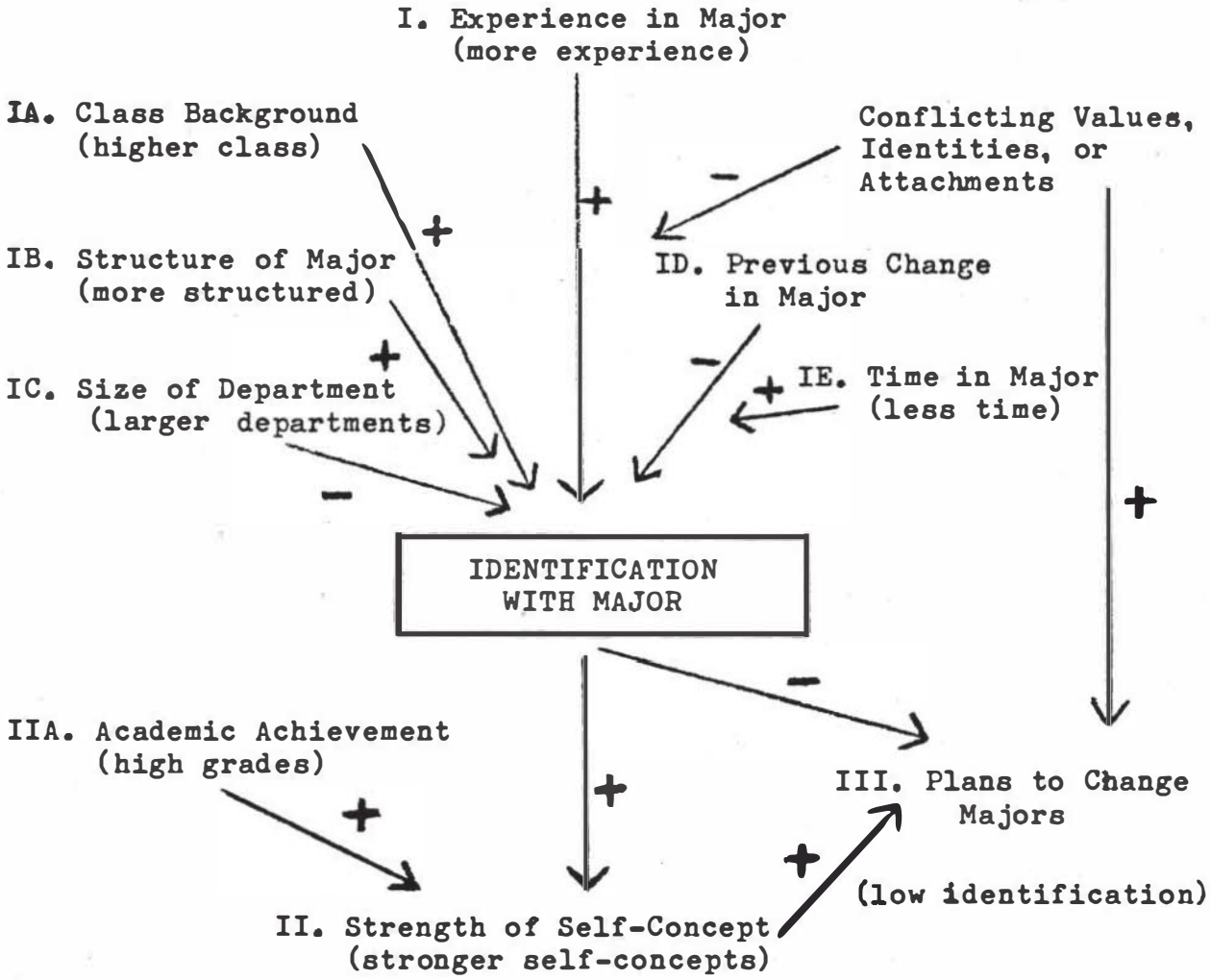
II. STUDENTS WHO HIGHLY IDENTIFY WITH THEIR MAJORS WILL HAVE STRONGER SELF-CONCEPTS THAN THOSE WHO DO NOT SO IDENTIFY. (p. 24)

IIA. Students with rather high grade point averages will have stronger self-concepts than students with relatively low grade point averages. (p. 25)

III. STUDENTS WHO HIGHLY IDENTIFY WITH THEIR MAJORS WILL BE LESS LIKELY TO PLAN ON SWITCHING MAJORS THAN STUDENTS WHO DO NOT HIGHLY IDENTIFY WITH THEIR MAJORS. (p. 27)

IIIA. Among students who do not highly identify with their majors, those persons who have strong self-concepts will be more likely to have plans to change their majors than students who have relatively weak self-concepts.

DIAGRAM OF PREDICTED RELATIONSHIPS



BACKGROUND (CONTROL) VARIABLES

1. Age
2. Sex
3. Population of Hometown
4. Population of High School
5. Year in College
6. Marital Status
7. Religion
8. Residence during College
9. Attendance at Previous College
10. Undergraduate Students Who Are Native-born American Citizens

CHAPTER THREE: RESEARCH METHODOLOGY

A. SOME BASIC ASSUMPTIONS OF CROSS-SECTIONAL ANALYSIS

The following chapter is an attempt to clarify some of the basic assumptions and methods employed in this research study. We will also indicate the procedure for selecting our sample and certain qualifications about the representativeness of these respondents. The final part of this chapter will involve a brief discussion of the operational definitions for the variables under study as well as the form of the questionnaire.

We have already observed that a longitudinal study of the process of occupational identification would have definite advantages over the cross-sectional approach used in the present study. As Astin (1970: 228) points out, the nature of our research design makes this study particularly vulnerable to the following assumptions: (1) that our sample of upperclassmen is representative of the total class of entering freshmen students from whom they were selected; (2) that underclassmen have been subject to the same admissions policies and have entered college for the same reasons as upperclassmen such that the two groups are not significantly different in any relevant variable. The tenuousness of these assumptions should be rather evident when we consider some of the events of the past four years (the draft, the Vietnam war, the job market, and declining college enrollements) which have undoubtedly influenced the reasons that certain students have entered college in the past, and other students may enroll in college at the present time.

We should also point out that the very nature of this re-

search project raises other questions. Will students who lack an interest in their field be more likely to withdraw from the university and thus lead to a spurious interpretation that experience in one's field directly influences identification? Will students with relatively weak self-concepts tend to drop out of college, and, as a result, leave us with the false impression that the college experience itself directly increases a student's sense of purpose and direction? These are very important considerations, but unfortunately they are beyond the control of the present study. In spite of these necessary precautions, it is somewhat reassuring to note that an exhaustive review of the research on college students led Kenneth Feldman (1969: 208) to conclude that the results of longitudinal and cross-sectional studies have generally been quite consistent.

B. THE STUDY POPULATION

Some brief comments on the nature of our sample are now necessary. The universe for this research project will be defined to include the following: All native-born, undergraduate students who have previously declared their majors and are presently attending classes at Eastern Illinois University during the summer quarter, 1973. Although our study will include any person falling within this category, the method for distributing and collecting the questionnaires is intended to limit the majority of respondents to students majoring in business, education, science, social science, and the humanities. We have no

intention to claim that these respondents in any way constitute a random sample of their various fields or of the total university population.

The fact that our sample of students was drawn from persons attending college during the summer quarter also indicates an additional bias. During this particular quarter, juniors and seniors (approximately 70% of the total number of undergraduate students attending summer quarter) far outnumbered freshmen and sophomores (30%). Apparently many upperclassmen decided to attend summer classes because of the upcoming change from the quarter to semester system.

One might also speculate that persons who attend summer school are more financially secure than other students. While many other students are forced to find summer jobs and a source of income for the coming year, these students have the opportunity to continue their education. The nature of our sample thus places great limitations on the possibility of generalizing from the conclusions of this research study.

C. METHOD FOR COLLECTING THE SAMPLE

The following section will briefly discuss the procedure for collecting our sample. Although a strictly random method was not utilized in this research project, we believe that this procedure resulted in a fairly representative sample of students from those major fields which are of special interest in this study.

Seventy-six professors were selected at random from the summer quarter schedule of classes at Eastern Illinois University.[1] Only professors teaching in those major fields in the College of Arts and Sciences, School of Education, and School of Business were selected.[2] One of the reasons for limiting this distribution was to avoid the problem of having a large number of respondents widely dispersed among the broad range of majors offered by the University. A more important reason, however, is that the model proposed by Becker and Carper would seem to be less appropriate for the analysis of students majoring in Physical Education, Home Economics, and Music, and we have thus attempted to limit the number of respondents in these fields.

Approximately one out of five professors in each departmental major was selected so that the number of professors con-

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[1] This number does not include three professors in the department of Sociology who were personally contacted by the author and did not receive the letters describing this project.

[2] See the official Eastern Illinois University catalog for a complete listing of those majors excluded from this study.

tacted was roughly equal to the number of professors in each field (see Appendix C for the number of professors contacted in each of the various major fields). On July 9, 1973, each of these seventy-six professors received a short letter indicating the nature of this research project and a request that they cooperate with this study by permitting students in their classes to fill out the questionnaires during the class time (see Appendix A for a sample of the letter mailed to these professors). During the following two-week period responses were received from fifty-three of the seventy-six professors who were contacted.[3] Thirty-one of these professors indicated that they would be willing to give up about fifteen minutes of their class time so that their students could complete the questionnaires in class. Eighteen professors indicated that they would only be willing to permit me to distribute the questionnaires in such a way that it would not interfere with their class meeting time. Seven professors responded that for various reasons that did not wish to cooperate with this research project during the summer quarter.

Only the thirty-one professors who gave permission to distribute and collect questionnaires during the class period were used in this study. This method for collecting the sample not only provided a rather uniform atmosphere in which the students completed the questionnaire form, but it also resulted in a fairly equal distribution of students in the various majors which were of

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[3]Three other professors responded after the two-week period during which the questionnaires were distributed. These professors were not used in this study.

particular interest in this study.

A total of 580 questionnaires were collected in classes which were being taught by the professors who cooperated in this study. Students who had not declared their majors were requested not to fill out the questionnaire. Although the voluntary nature of this survey was emphasized in each class, no student simply refused to fill out the form. Fifty-six questionnaires were not used in this analysis for various reasons (see Appendix B) leaving a total of 524 students who will serve as our sample.

D. CHARACTERISTICS OF THE SAMPLE POPULATION

The following section will consist of a brief discussion of some of the major characteristics of the sample of students upon which our analysis is based. We will be especially concerned with some possible biases resulting from the procedure used to collect our sample. Appendix C and D contain a more detailed description of the various characteristics of the sample population.

This sample of 524 undergraduate students consisted of 298 females (57%) and 226 males (43%)--a distribution that was quite similar to the sex-ratio for the total number of students attending summer classes. A comparison of the distribution by year in college for our sample and the total population reveals

a slight over-representation of upperclassmen: 20% of this sample consisted of freshmen and sophomores while the total undergraduate population was approximately 30% freshmen and sophomores. Juniors were only slightly over-represented (33% in our sample and 31% in the total population), but 46% of our sample was made up of seniors while the actual percentage of seniors attending summer quarter was only 39%. Perhaps the most reasonable explanation for this large number of upper-class respondents is that nearly all juniors and seniors have declared their majors, while many freshmen and some sophomores have not done so. It is also possible that professors teaching lower-level classes felt that the questionnaire was less appropriate for students who had only recently begun their college careers.

Although percentage distributions for the number of students majoring in the different fields were not available, there are several indications that students in education and the social sciences are somewhat over-represented in this sample. As Appendix C shows, professors in these fields were more likely to cooperate with this study, and, as a result, students majoring in these fields were more likely to participate in the survey. It would appear that professors in education and the social sciences tend to be more research-oriented than professors in the humanities, sciences, and business. Future studies which use a similar method for collecting their sample might attempt

to correct this bias by contacting a greater proportion of professors in the humanities, sciences, and business.

These brief observations clearly indicate that this sample is slightly over-representative of upperclass students and certain majors. Nevertheless, we believe that the method for selecting these respondents resulted in a sample of students which is not seriously biased by any systematic errors. Perhaps the major advantage of this procedure for collecting a sample is that the classroom environment ensures a serious and uniform atmosphere in which the respondents can provide both complete and accurate information.

E. RESEARCH INSTRUMENTS

In the following section of the paper we will discuss the form of the questionnaire and describe the operational definitions which have been used to measure the variables under study. While many of the operational definitions for these variables are rather self-explanatory, others will require greater elaboration.

The questionnaire form consists of six pages (see Appendix B). The first page is a brief explanation of the purpose of this study and a short request for complete and accurate information. Special emphasis is also given to the anonymity of the student's responses. The next four pages consist of questions and statements which will be outlined in the following discus-

sion of the operational definitions for this study. The final page is a list of nine statements concerned with some of the most frequent reasons which students give to explain their decision to change majors. These statements are only of peripheral interest to the central purpose of this research project. A discussion of the findings from our analysis of the responses to these statements can be found in Appendix F.

I. OPERATIONAL DEFINITIONS OF BACKGROUND VARIABLES

Since the operational definitions for some of the following variables are rather evident, we will simply indicate the statement or question which appears in the questionnaire. Brief remarks concerning the type of grouping or recoding will be made when this procedure is not obvious (see Appendix E for a more detailed explanation of this subject). We will also comment on those control or background variables which were not significantly related to the major findings of our study.

The following variables are numbered in the order in which they appear in the questionnaire. (For the actual distribution of responses to these items, see Appendix D).

1. Sex. (Circle One) Male Female

2. Age. What is your present age?
   1. 17-20 2.21-24 3.25 or more

   Age was classified into the three above categories and later collapsed into two groups--those less than 21 and those 21 or older. This variable was not significantly related to the three dependent variables in our analysis.

3. Year in College. What year are you in college?

Freshmen Sophomore Junior Senior Graduate Student

Since only 27 of our respondents were freshmen, this variable was classified into two groups: freshmen-sophomores and juniors-seniors. This item was used to exclude the 32 graduate students from our analysis.

4. Religious Preference. What is your present religious preference?

Protestant Roman Catholic Jewish Other None

Religion was classified into the above five groups and then recoded into two groups-- those indicating a religious preference and those indicating no preference.

6. Population of Hometown. What is the population of the community which you look upon as your hometown during your high school days?

1. Farm 2. Less than 2500 3. 2500-25,000 4. 25,000-100,000 5. More than 100,000

This item was taken from a similar study by James Davis (1965). Population of hometown was recoded into three groups (1 and 2; 3; and 4 and 5) and later into two groups (1,2, and 3; and 4 and 5). This variable was not significantly related to any of the three dependent variables in our study.

7. Population of High School. How many students attended the high school from which you graduated?

1. Less than 200 2. 200-500 3. 500-1500 4. 1500-3000 5. More than 3000

This variable was recoded into three categories (1 and 2; 3; 4 and 5). Population of high school was not significantly related to any of the major findings of this study.

8. Marital Status. (Circle One) 1. Single 2. Married

9. Residence in College. Which of the following best describes where you have lived during the past year?

1. Fraternity or sorority house 2. Off-campus room or apartment 3. Dormitory or other campus housing 4. With my parents 5. Other

This variable was classified into the original five groups. Our analysis did not reveal any significant relationship between residence in college and any of the three dependent variables.

9. Attendance at a Previous College or Junior College.

Are you a transfer student (that is, did you attend another college or junior college before coming to Eastern)?

Analysis of this variable did not demonstrate any significant differences between transfer and permanent Eastern students in terms of the major findings of this study. However, transfer students did give somewhat different explanations for previous major changes (see Appendix G).

II. OPERATIONAL DEFINITIONS OF INDEPENDENT VARIABLES

16. Experience in Major. How many courses have you completed in your present major?

0-3 4-7 8-11 12-15 16-19 More than 20

Ideally this measure would have attempted to adjust for variations in the number of courses and type of courses required in each major. For example, the number and type of courses for persons majoring in Physical Education is quite different from the required courses for persons in Special Education. Since this variable is only a rather crude measure of experience in major, we have categorized the responses into two groups--those persons completing less than eight courses and those completing eight or more.

5. Social Class Background. What is the major occupation of the head of the household in your parental family?

These occupations were grouped into the four categories used by Werts (1966: 78-82) in his study of social class and career choices of freshmen students. These four groups are distinguished as follows:

1. Occupations in which the modal education of the fathers was a high school diploma or less.
2. Occupations in which the modal education of the fathers was some college.
3. Occupations in which the modal education of the fathers was a baccalaureate degree.

4. Occupations in which the modal education of the fathers was an advanced degree.

Werts reported that this measure was highly correlated with a more composite index of SES level (including type of father's occupation, father's education, and income) used by Davis (1964). Since only 31 of the respondents ranked in the fourth group, this variable was recoded into two groups (1 and 2; and 3 and 4).

23. Structure of Major. What is your present major? (If you have a double major, indicate that major in which you have the most course credits).

For analytical purposes, departmental majors have been classified into five general fields: business, education, science, social science, and humanities. This classification is very similar to the categories used by Davis (1965). For a more detailed listing of the various majors classified under these general fields, see Appendix D.

As we have indicated in a rather extended discussion related to this variable, the following categories for structure of major will be used:

Structured Majors: Business, Education, and Science
Unstructured Majors: Social Science and Humanities
Unclassified Majors: Any major not categorized in one of the general fields.

14. Size of Present Major.

Size of present major has been operationalized in terms of the number of professors within the department. Four categories have been constructed by counting the number of professors under various majors in the class schedule for Spring, 1973. These categories are:

1. Small--less than seven professors (for example, Marketing, Science, Speech Pathology, etc.)
2. Medium--eight to fifteen professors (for example, Sociology, Economics, Political Science, etc.)
3. Large--fifteen to twenty-five professors (for example, Psychology, Management, History, etc.)
4. Very Large--more than twenty-five professors (for example, English, Music, Physical Education, etc.)

This variable was analyzed by using the original four groups and then was recoded into two classes (1 and 2; and 3 and 4).

12. Previous Change in Major. Have you ever changed majors since you entered college?
If you have changed majors, how many times have you changed?
If you have changed majors, what was your previous major before you declared your present major?

This variable was classified according to the number and type of previous changes. Number of previous changes was collapsed into three categories--those who had never changed, those who had previously changed one time, and those who had changed two or more times. Type of previous change was divided into three categories: no change, minor change, and major change. A change between closely related fields (for example, from social science to sociology) was classified as a minor change. A change between unrelated fields (for example, from mathematics to history) was categorized as a major change.

15. Time in Major. How many quarters have you completed since you declared your present major?

This item was originally categorized into four groups and later collapsed into two categories--those who had completed less than six quarters since declaring their present major, and those who had completed six or more quarters.

8. Marital or Family Commitments.
(Circle One) Single Married
If you are married, do you have any children?

This variable was classified into three groups--single persons, persons who were married but did not have any children, and married persons who had children. Since the number of married persons was rather small, this variable was collapsed into two groups except in cases where this regrouping tended to suppress a significant finding.

20. Perceived Pressures to Choose a Particular Major.

"My present major was not really my own choice--I was 'urged' to select it because of the expressed or implied wishes of parents, friends, teachers, or others."

Response choices for this item were ranked on a five-point scale from "Strongly Agree" to "Strongly Disagree". Although this statement provides only an extremely crude measure of the actual impact of significant others, it does permit some analysis of the feelings of external pressure to enter a certain field. Unfortunately this item may be partially biased because of the general reluctance of younger persons to admit or recognize such pressures. Of the 524 respondents,

474 (90%) either disagreed or strongly disagreed with this statement; the remaining 50 respondents (either agreeing with this statement or undecided) will be classified as students who believe that their decision to enter their present field was at least partially the result of strong encouragement from other persons. It should also be pointed out that agreement with this item may indicate something of a rationalization on the part of those students who have failed to develop much interest or committment to their present major or future occupational plans.

11. Occupational Values in Conflict with Major's Value Orientation.

Which one of the following characteristics would be most important to you in picking a career or job?

1. Making a lot of money
2. Opportunities to be original and creative
3. Opportunities to be helpful to others and useful to society
4. None of the above

This question was adapted from the extensive research study by Davis (1965). Of the eleven items contained in his analysis of occupational interests and values, these three items were generally independent of each other and strongly related to certain career preferences. More specifically, education and the social sciences were disproportionately chosen by persons oriented toward working with people, business was dominated by persons who wanted to make a lot of money, and persons in the humanities and fine arts were most likely to seek opportunities to be original and creative. Persons in the sciences were equally divided in their preference for making a lot of money and opportunities to be original and creative, but they were significantly less likely to choose opportunities to be helpful to others and useful to society. Our analysis attempted to replicate these findings for students majoring in the various fields at Eastern Illinois University. Furthermore, our analysis sought to discover whether persons whose values and occupational interests were significantly different from the dominant orientation of their major field would reveal this conflict in terms of their commitment to that major and possible plans to change to a more compatible field of study.

10. Participation in Activities Unrelated to Present Major.

In which of the following activites have you been an active participant at Eastern Illinois University?

1. Campus publications (newspaper, yearbook, etc.)
2. Campus group concerned with political, national, or world issues

3. Intercollegiate (varsity) athletics)
4. Social fraternity or sorority
5. Student government
6. Other (Please Specify: _____)

Organizations or activities which were directly related to a person's major were not counted. For example, a person majoring in political science who circled student government would not be counted as participating in that organization since his participation would more likely serve as a reinforcement of his interest in political science, rather than as a potential source of conflict. This variable was classified into three groups--persons who had not participated in any unrelated activities, persons who had participated in only one such activity, and persons who had been involved in two or more activities unrelated to their major.

III. OPERATIONAL DEFINITIONS OF DEPENDENT VARIABLES

21. Identification with Major.

Adamek and Goudy (1966: 187) developed a ten-item scale which incorporates the major elements and mechanisms outlined by Becker and Carper in their study of graduate students. (These ten statements and the coding procedure can be found on page three of the questionnaire). Response choices range from "Strongly Agree" to "Strongly Disagree" with numerical weights being assigned so that a high score would indicate high identification. The mean score for our 524 respondents was 36.6 (with a standard deviation of 5.08 and a range from 21-50). Those students scoring below 37 were classified as low identifiers, and persons scoring above 37 were classified as high identifiers.

The corrected split-half reliability of this scale for our total number of respondents was .69. This figure was somewhat lower than the figure of .80 reported in the original study. Although our research did not include an item-analysis of the individual statements, we believe that slight changes in statements three and seven would help to improve the reliability of this measurement. Future studies using this scale might make use of the following revisions:

Original Statement: I feel that the occupation I have chosen to prepare is about the most worthwhile of all.
Revised Statement: I feel that the occupation I have chosen to prepare for is one of the most worthwhile of all.

Original Statement: I often argue the merits of the point of view of my major over that of others.
Revised Statement: I often discuss the merits of the point of view of my major over that of others.

Although the items in this scale appear to measure occupational interest and committment to one's major field, the authors of this scale give no evidence to support the validity of this measure.

22. Strength of Self-Concept.

A six-item scale was used in the study by Adamek and Goudy and also employed in our analysis. (The list of statements and scoring procedure can be found in page four of the questionnaire.) The mean score for our respondents on this scale was 20.3 (with a standard deviation of 3.94 and a range from 8-30). Students scoring below 21 were classified as persons with weak self-concepts, and persons scoring 21 or more were considered to have strong self-concepts.

The corrected split-half reliability of this scale for our 524 respondents was .76. The authors make no effort to substantiate the validity of this scale.

It should be pointed out that certain items in the identification scale and the self-concept scale are somewhat interdependent. For example, a person agreeing with statement nine in the identification scale ("I really have invested a great deal of time and effort in preparing for my chosen profession") is also likely to agree with statement three in the self-concept scale ("I have a clear idea of my occupational goals"). Future studies using these two scales might attempt to revise several of these items so that these two measurements are less interrelated.

17. Plans to Change Majors

Although major-switching is a fairly frequent occurrence among undergraduate students, only a small percentage of students would have plans to change majors at any one time. The following questions were phrased to increase the number of respondents who had some plans to change majors and to include students who were simply considering the possibility of changing, but who had no definite plans to change at the time they completed the questionnaire.

Do you have any plans to change your major at the present time? If you are considering the possiblity of changing your major, which major are you most likely to switch to?

These responses were then arranged in an ordinal scale as fol-

lows:

1. No change planned or considered
2. Considering the possibility of a minor change (for example, from elementary education to special education)
3. Planning a minor change
4. Considering a major change (for example, from chemistry to political science)
5. Planning a major change

This variable was originally analyzed within these five groups. Further analysis demonstrated that the relationships remained virtually the same when this variable was collapsed into two categories--those who had no plans to change, and those who either had plans to change their majors or were at least considering that possibility. (For a comparison of the similarity between categorizing this variable into five and two categories, see Appendix E).

F. METHODS OF ANALYSIS

The following section is a brief presentation of the procedure which will be used in the following chapter of this thesis. The purpose of this discussion is to establish some formal criteria for evaluating our research findings. It is not our intention to attempt to present a definitive statement on the theoretical and methodological rationales for employing one type of statistical method and not another.

Chi-square tests of significance will be used to determine the outcomes of the previously formulated hypotheses. The null hypothesis will be accepted unless the probability of obtaining the observed findings is less than the .05 level. We will indicate those cases in which the findings are significant only in terms of the directional hypothesis. Since the method for collecting our respondents does not meet the requirements of an independent random sample, this statitistical test is used only to establish whether a relationship exists for our sample and not as a basis for generalizing to the larger population.

While chi-square measurements are also reported for the relationships in our exploratory analyis, these statistical tests

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[4] The controversy about significance tests rages on. We tend to agree with the position of Winch and Campbell (1970: 199):

"To do or not to do a test of significance--that is a question that divides men of good will and sound competence. We believe that although unreasonable claims are sometimes made for the test of sigficance and that although many have sinned in implicitly treating statistical significance as proof of a favored explanation, still the social scientist is better off for using the significance test than for ignoring it. More precisely, it is our judgment that although the test of significance is irrelevant to the interpretation of a cause of a difference, still it does provide a relevant and useful way of assessing the relative likelihood that a real difference exists and is worthy of interpretive attention, as opposed to the hypothesis that the set of data could be a haphazard arrangement."

are not intended to determine whether these findings are significant or not. As Lipset (1971: 84) points out, chi-square tests are designed to confirm and consolidate what is already believed to be true. Exploratory analysis, on the other hand, is more concerned with revealing the unexpected finding. Since our operational definitions for these variables are only very crude measurements, it is simply our intention to indicate whether this analysis would suggest the need for further investigation of these relationships.

As Hirschi and Selvin (1973: 220) indicate, finding a significant difference is only the signal to proceed with analysis, not to end it. We will attempt to control for any relevant antecedent variables which may be influencing the relationship. By introducing possible extraneous, suppressor, or distorter variables into our analysis, we will be more likely to avoid misleading interpretations of the original relationship. No less important, however, the analysis of these control variables may suggest new hypotheses and point the way to other areas which require further study.

The use of chi-square tests in the contingency tables is somewhat problematic. Chi-square is affected by the number of cases and the magnitude of the relationship. Since controlling for test factors has the effect of reducing the number of cases in each cell, a moderate association for the total relationship would appear less significant even though the strength of asso-

ciation is maintained in each of the contingent associations.[5] To obviate this difficulty, Blalock (1960: 238-239) suggests pooling the separate chi-square tests into a single over-all measure. This procedure is not always advisable, however, and may possibly lead to a serious distortion of the results of controlling for the test factor. Thus, although chi-square tests have been reported for the contingent associations, our interpretation of the results of the control tables may occasionally vary from a strict adherence to the apparent significance of these statistical tests.

After we have established that a significant difference does exist--and that this difference holds constant in spite of our attempts to control for any relevant factors--we will be concerned with the strength of the relationship. Gamma coefficients have been computed using the NUCROS program and are reported for the major findings in this study. Since most of the relationships in this study are linear in form, the correlation coefficient serves as a fairly accurate indicator of the magnitude of association between the independent and dependent

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[5] As Blalock (1960: 226) points out, if the proportion of cases in the various cells remain unchanged, chi-square varies directly with the number of cases. In the following three hypothetical tables, the correlation coefficient remains the same, but the chi-squares differ "significantly".

10	5
5	10

Total N= 30
Gamma= .60
Chi-Square= 3.34
P < .10

20	10
10	20

Total N= 60
Gamma= .60
Chi-Square= 6.68
P < .01

40	20
20	40

Total N= 120
Gamma= .60
Chi-Square= 13.36
P < .001

variables (see Appendix E for further comments on the form of the relationships). Special care will be taken, however, in interpreting the correlations for our exploratory analysis. Since these variables were only crudely measured, it is possible that some of the coefficients could be artificially affected by the lack of precision in our operational definitions.

CHAPTER FOUR: ANALYSIS OF HYPOTHESES

The following chapter will present the major findings of this thesis project. We will use the measurements and criteria outlined in the previous chapter to determine the outcomes of our formulated hypotheses and exploratory analysis. When the results of these findings fail to confirm our former predictions and rationales, we will offer a brief discussion of alternative explanations which seem more consistent with our data.

A. IDENTIFICATION WITH MAJOR

I. PERSONS WITH MORE EXPERIENCE IN THEIR MAJOR FIELD WILL MORE HIGHLY IDENTIFY WITH THEIR MAJORS THAN PERSONS WITH LESS EXPERIENCE. (p. 15)

This first major hypothesis was supported by our data. As Table 1 shows, 60% of those with more experience in their majors demonstrate high identification with their field of study while only 42% of those with less experience showed the same level of identification. This 18% difference between the two groups was significant at the .001 level. Our measure of the magnitude of the association between experience in major and identification with that major was only moderate in strength (gamma= .352). It is our belief, however, that a more precise and accurate measurement for experience in major (a measurement that is capable of adjusting for some of the important variations in the type and number of cour-

Table 1

EXPERIENCE IN MAJOR AND IDENTIFICATION WITH MAJOR: TOTAL RELATIONSHIP

IDENTIFICATION WITH MAJOR	Total Sample: Courses in Major	
	Less than Eight Courses	Eight or More Courses
Low	58% (108)	40% (132)
High	42 (78)	60 (199)
	100% (186)	100% (331)
	Total N=517	

Gamma= .352
Chi-Square= 15.834
P < .001

ses required in the different fields) would have resulted in a stronger correlation. Nevertheless, analysis of this relationship indicates that experience and training during the college years is only one of many variables which influence the degree of interest and commitment to a particular field and related occupational goals. Our analysis will now proceed to examine the impact of some of these other variables on the development of occupational identification.

IA. Students from higher class backgrounds will more highly identify with their majors than students from lower class backgrounds. (p. 16)

This sub-hypothesis was not supported by our study. There was no significant difference in the degree of identification for students from varying social class backgrounds (Table 2). Further analysis tended to reinforce our confidence in this finding. For example, as Table 26-C in Appendix F shows, social class background was significantly related to academic achievement. This relationship was consistent with the findings of a recent study of some 40,000 undergraduate students by James Davis (1964: 40). Since academic achievement was also significantly related to identifi-

Table 2

SOCIAL CLASS BACKGROUND AND IDENTIFICATION WITH MAJOR: TOTAL RELATIONSHIP

IDENTIFICATION WITH MAJOR	Total Sample Social Class Background Low	 High
Low	43% (99)	47% (116)
High	57 (130)	53 (129)
	100% (229)	100% (245)
	Total N= 474	

Gamma= -.083
Chi-Square= 0.809
Not Significant

cation with major (see Table 26-A in Appendix F), we attempted to control for grade point average in analyzing the original relationship. The introduction of this test factor simply reconfirmed the null hypothesis that there is no relationship between social class background and identification with major for our sample of respondents.

Previous studies have clearly demonstrated the importance of socio-economic status in terms of educational and occupational aspirations, as well as career choices during college (see Chapter One for our previous discussion of this issue). Our data tend to suggest that, at least for our sample of students, the influence of social class background becomes less distinct once occupational decisions have been reached. After these choices have been made, socio-economic status is of no significance in determining the degree of interest or commitment to that chosen field or future career.

IB. Students majoring in more structured fields will more highly identify with their majors than students in fields that are less structured. (p. 17)

Initial analysis of the data tended to support this prediction. As we see in Table 3-B, persons majoring in structured fields (business, education, and science) more strongly identified with their majors than persons majoring in unstructured fields (social science and the humanities). When we controlled for sex, however, this relationship totally disappeared for male students and became considerably stronger for females (Table 3-A). This finding was

Table 3

STRUCTURE OF MAJOR AND IDENTIFICATION WITH MAJOR

(A) RELATIONSHIP WHEN CONTROLLING FOR SEX AND
(B) ORIGINAL RELATIONSHIP

	(A) CONTINGENT ASSOCIATIONS				(B) TOTAL ASSOCIATION	
	Males		Females		Total Sample	
IDENTIFICATION WITH MAJOR	Structure of Major		Structure of Major		Structure of Major	
	Structured Majors	Unstructured Majors	Structured Majors	Unstructured Majors	Structured Majors	Unstructured Majors
Low	53% (60)	50% (42)	37% (58)	56% (53)	44% (118)	53% (95)
High	47 (53)	50 (42)	63 (102)	44 (40)	56 (153)	47 (84)
	100% (113)	100% (84)	100% (160)	100% (93)	100% (271)	100% (179)
	Total N=197		Total N= 253		Total N= 450	
ASSOCIATION LEVEL	Gamma= -.048		Gamma= .382		Gamma= .189	
SIGNIFICANCE LEVEL	Chi-Square= 0.111 Not Significant		Chi-Square= 9.386 P < .005		Chi-Square= 3.927 P < .05	

somewhat baffling since prior analysis had shown that males and females did not significantly differ in their identification scores. Further investigation of this relationship revealed that this finding was primarily the result of the large number of females in education who scored high on the identification scale. Table 4-B presents the relationship between structure of major and identification with major when the 121 respondents majoring in education are excluded from the analysis. The original low association almost totally disappears and becomes insignificant.

Table 4

STRUCTURE OF MAJOR AND IDENTIFICATION WITH MAJOR:
(A) RELATIONSHIP FOR TOTAL SAMPLE
(B) RELATIONSHIP FOR ALL MAJORS EXCEPT EDUCATION

IDENTIFICATION WITH MAJOR	(A) Total Sample Structure of Major Structured Majors	(A) Total Sample Structure of Major Unstructured Majors	(B) All Majors Except Education Structure of Major Structured Majors	(B) All Majors Except Education Structure of Major Unstructured Majors
Low	44% (118)	53% (95)	53% (80)	54% (95)
High	56 (153)	47 (84)	47 (72)	46 (82)
	100% (271)	100% (179)	100% (152)	100% (177)
	Total N= 450		Total N= 329	
	Gamma= .189 Chi-Square= 3.927 P < .05		Gamma= .021 Chi-Square= 0.036 Not Significant	

Adamek and Goudy (1966: 195) also reported that students in education at Purdue University exhibited high scores on the identification measure. Analysis of the data for our sample indicated that females majoring in elementary education were largely responsible for the unusually high scores for the education field in general. This finding was somewhat surprising since we felt that the present surplus of teachers might adversely affect the degree of commitment these students would have for their vocational interests and goals.

Thus we would tend to reject the hypothesis that the structure of a major influences the degree of identification with that major. Our data show no significant differences for the various fields--with the one noteworthy exception of students majoring in education. Since we have no reason to believe that the identification scale is unduly partial toward students in education, we suggest that future studies attempt to isolate some of the specific causes for this finding.

IC. Students majoring in smaller departments will more highly identify with their majors than students in larger departments. (p.19)

This sub-hypothesis was not supported by our data. Although the relationship is not significant, Table 5-A shows that persons in large departments were somewhat more likely to score high on the identification scale. When education majors (many of whom

were classified in large departments) were excluded from the analysis, the relationship disappears (Table 5-B). We thus conclude that the size of the department is unrelated to the individual student's identification with his major.

The purpose for introducing this sub-hypothesis was to determine whether the study of graduate students by Becker and Carper should be revised when applied to the analysis of undergraduates. Since the number of professors on the undergraduate level is usually much larger than graduate faculties, we tried to discover whether this difference would affect the degree of identification with the respective majors. In this regard, the model of occupational identification would seem to be just as applicable to the study of undergraduate students.

Table 5
SIZE OF PRESENT MAJOR AND IDENTIFICATION WITH MAJOR:
(A) RELATIONSHIP FOR TOTAL SAMPLE
(B) RELATIONSHIP FOR ALL MAJORS EXCEPT EDUCATION

IDENTIFICATION WITH MAJOR	(A) Total Sample — Size of Present Major		(B) All Majors Except Education — Size of Present Major	
	Small	Large	Small	Large
Low	51% (102)	44% (141)	51% (88)	51% (114)
High	49 (100)	56 (180)	49 (86)	49 (109)
	100% (202)	100% (321)	100% (174)	100% (223)
	Total N= 523		Total N= 397	
	Gamma= .131 Chi-Square= 2.151 Not Significant		Gamma= -.011 Chi-Square= 0.012 Not Significant	

ID. Students who have never changed majors will more highly identify with their present majors than students who have previously changed majors. (p. 21)

This hypothesis received somewhat tentative support from our data. Table 6-B demonstrates that while persons who have never changed majors and those who have made only a minor change do not significantly differ in their identification scores, students who have made a major change (from a field that was unrelated to their present major) are more likely to score low on the identification with major scale. This difference was significant at the .05 level for the directional hypothesis. The correlation coefficient (gamma= -.089) is somewhat lower than we would have expected--partially because the relationship is not a linear one (persons who have changed to a related field scored slightly higher than persons who have never changed majors).

While type of previous change is associated with identification with present major for our respondents, no such relationship exists between number of previous changes and subsequent identification with the student's present major field. Table 7-B indicates that there is only a 4% difference between persons who have never changed majors and those students who have changed one or more previous times--a finding that is not significant.

Our analysis thus tends to suggest that the general fact of major-switching is not significantly related to the development of interest and commitment to a student's present field of study. However, the finding that persons who make significant

changes in their college curricula are more likely to score low on the identification scale requires further elaboration. Item #9 in the identification with major scale ("I really have invested a great deal of time and effort in preparing for my chosen profession") may partially explain this finding. Since most of these persons have made an important change in their vocational plans during the last couple years, they are probably less likely to indicate high agreement with this statement. We doubt, however, that the slight bias represented in this statement would account for the significant difference between students who made a major change in their college plans, and those students who have made only a relatively minor change or who have never changed majors. As a result, we would tend to conclude that students who have made important decisions affecting their educational and occupational goals are somewhat less likely to develop the same degree of identification with their present majors as other students. This conclusion, however, fails to take into account the relevant variables of experience in major as well as length of time in major. As the following analysis will indicate, controlling for these factors leads to a somewhat different finding.

IE. With time in major held constant, students who have previously changed majors will more highly identify with their majors than students who have never changed majors. (p. 21)

This corollary hypothesis was supported by the data for our sample of students. Our analysis, however, is somewhat complicated and incomplete, thus suggesting the need for further research to confirm our finding. Among students who have completed less than six quarters in their present major, the relationship is significant for both the type of previous change (at the .01 level) and for the number of previous changes (at the .05 level). Table 6-A shows that among persons who have completed less than six quarters in their present majors, 59% of the students who have made a minor change highly identify with their majors, 42% of those who have made a major change highly identify with their respective fields, and only 34% of those who have never changed majors scored high on the identification scale. The correlation coefficient for this relationship is a rather unreliable measure for the magnitude of the association since the relationship does not progress in a linear fashion. A similar finding emerges for the relationship between number of previous changes and identification with present major (Table 7-A). Among persons with less than six quarters in their present majors, 50% of the students who had previously changed majors at least one time indicated high interest in their present majors, while only 34% of those who had never changed scored high

on the identification scale. The measure for this association (gamma= .266) would seem to be a rather accurate reflection of the strength of the relationship.

It should be pointed out at this time that the relationship is reversed for persons who have completed six or more quarters in their present major. Among these students, those who have never changed majors score consistently higher than those who have previously changed majors. We believe, however, that this type of interaction is quite consistent with the ideas underlying our prediction. Persons who have already completed six or more quarters in their present majors would probably be unaffected by the cultural and bureaucratic pressures which our rationale claims as the major mechanism for increasing the degree of identification. Thus, although we believe that our data tend to support this hypothesis, we have remained somewhat skeptical about whether this finding is really valid. Even though attempts to control other relevant variables have generally resulted in such a small number of cases that further analysis was virtually impossible, Table 8-A does tend to substantiate our previous evidence. Since experience in major and time in major were highly correlated (gamma= .795), we tested the original relationship by controlling for courses in major. If the rela-

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[6]Since Table 7 combines all persons who have previously changed majors (persons who have changed one or more times), it is unaffected by the nonlinear relationship when previous major changes are categorized into two groups--minor and major changes.

tionships had been quite similar, we could conclude that time in major is not the real determining factor. Nevertheless, Table 8-A shows that the relationship for students who have completed less than eight courses in their major is not significant, and the strength of association is considerably weaker (gamma= .098) than for the original relationship (gamma= .266). This finding confirms our previous evidence that students who are subjected to a certain amount of pressure to complete their graduation requirements within a certain amount of time also develop a stronger commitment to their present major and related occupational goals.

Table 6

TYPE OF PREVIOUS CHANGE IN MAJOR AND SUBSEQUENT IDNETIFICATION WITH PRESENT MAJOR:
(A) RELATIONSHIP WHEN CONTROLLING FOR QUARTERS IN PRESENT MAJOR AND
(B) ORIGINAL RELATIONSHIP

	(A) CONTINGENT ASSOCIATIONS						(B) TOTAL ASSOCIATION		
IDENTIFICATION WITH MAJOR	Less than Six Quarters Type of Previous Change			Six or More Quarters Type of Previous Change			Total Sample Type of Previous Change		
	No Change	Related Change	Unrelated Change	No Change	Related Change	Unrelated Change	No Change	Related Change	Unrelated Change
Low	66% (57)	41% (26)	58% (40)	37% (78)	45% (17)	47% (25)	45% (135)	42% (43)	54% (66)
High	34 (30)	59 (38)	42 (29)	63 (132)	55 (21)	53 (28)	55 (163)	58 (59)	46 (57)
	100% (87)	100% (64)	100% (69)	100% (210)	100% (38)	100% (53)	100% (298)	100% (102)	100% (123)
	Total N= 220			Total N= 301			Total N= 523		
ASSOCIATION LEVEL	Gamma= .133			Gamma= -.171			Gamma= -.089		
SIGNIFICANCE LEVEL	Chi-Square= 9.442 P < .01			Chi-Square= 2.205 Not Significant			Chi-Square= 3.473 P < .10 Significant at .05 level for directional hypothesis		

Table 7

NUMBER OF PREVIOUS CHANGES IN MAJOR AND SUBSEQUENT IDENTIFICATION WITH PRESENT MAJOR:

(A) RELATIONSHIP WHEN CONTROLLING FOR QUARTERS IN PRESENT MAJOR
(B) ORIGINAL RELATIONSHIP

	(A) CONTINGENT ASSOCIATIONS				(B) TOTAL ASSOCIATION	
IDENTIFICATION WITH MAJOR	Less than Six Quarters		Six or More Quarters		Total Sample	
	Number of Previous Chan.		Number of Previous Chan.		Number of Previous Changes	
	None	One or More	None	One or More	None	One or More
Low	64% (56)	50% (67)	37% (77)	46% (43)	45% (133)	49% (111)
High	36 (32)	50 (66)	63 (130)	54 (51)	55 (163)	51 (117)
	100% (88)	100% (133)	100% (207)	100% (94)	100% (296)	100% (228)
	Total N= 221		Total N= 301		Total N= 524	
ASSOCIATION LEVEL	Gamma= .266		Gamma= -.175		Gamma= -.075	
SIGNIFICANCE LEVEL	Chi-Square= 3.773 P< .10 Significant at .05 level for directional hypothesis		Chi-Square= 1.970 Not Significant		Chi-Square= 0.729 Not Significant	

Table 8

NUMBER OF PREVIOUS CHANGES AND SUBSEQUENT IDENTIFICATION WITH PRESENT MAJOR:
(A) RELATIONSHIP WHEN CONTROLLING FOR COURSES IN MAJOR
(B) ORIGINAL RELATIONSHIP

	(A) CONTINGENT ASSOCIATIONS				(B) TOTAL ASSOCIATION	
IDENTIFICATION WITH MAJOR	Less than Eight Courses		Eight or More Courses		Total Sample	
	No Previous Change in Major	One or More Previous Majors	No Previous Change in Major	One or More Previous Majors	No Previous Change in Major	One or More Previous Majors
Low	60% (62)	55% (46)	37% (70)	44% (62)	45% (133)	49% (111)
High	40 (41)	45 (37)	63 (120)	56 (79)	55 (163)	51 (117)
	100% (103)	100% (83)	100% (190)	100% (141)	100% (296)	100% (228)
	Total N= 186		Total N=331		Total N= 524	
ASSOCIATION LEVEL	Gamma= .098		Gamma= -.147		Gamma= -.075	
SIGNIFICANCE LEVEL	Chi-Square= 0.430 Not Significant		Chi-Square= 1.716 Not Significant		Chi-Square= 0.729 Not Significant	

IA. EXPLORATORY ANALYSIS OF VARIABLES RELATED TO IDENTIFICATION WITH MAJOR

Two of the four variables examined in our exploratory analysis were unrelated to scores on the identification with major scale. Our data did not reveal any relationship between marital or family responsibilities and the development of interest and commitment to major field. Single persons, married persons without children, and married persons with children scored approximately the same on the identification measure used in this study. Our analysis also failed to show that participation in extracurricular activities during the college years was related to the degree of identification with major for our sample of students. Persons who had participated in one or more activities which were not related to their academic or vocational plans did not score lower on the identification with major scale than persons who had participated in no such activities.

Our exploratory analysis did reveal a significant difference in terms of the three choices in the item concerned with occupational values. We had predicted that identification with major would be highest among those persons whose occupational values were consistent with the dominant value orientation of their respective fields. Our analysis indicates, however, that there is little variance among the different fields of study. As Table 9-B demonstrates, only 39% of those persons who show a strong preference for making money highly identify with their

majors. On the other hand, 56% of those students who choose opportunities to be original and creative, and 60% of those students who prefer opportunities to be helpful to others and useful to society scored high on the identification with major scale. This difference was significant at the .005 level. The relationship holds constant for each of the five major fields (business, education, science, social science, and education) and the total chi-square measure for these contingent associations is significant at the .05 level.

Davis (1964: 40) had reported that females showed a greater preference for the "people" option, while males were somewhat more likely to indicate a concern for making money. When controlling for sex (Table 9-A), this relationship which had been previously confirmed for our sample (tau= .265) emerges in the contingent associations but does not significantly alter the original relationship. A comparison of the correlation measures indicates that the previous finding is somewhat stronger for females (gamma= .302), and slightly weaker for males (gamma= .223) but still significant at the .05 level.

While this finding seems rather surprising, the statistical evidence is undeniable. It does not seem that any of the items in the identification scale are seriously biased in favor of persons who tend to be either originality-oriented or people-oriented. We can thus conclude that at least for our sample of students, occupational values are significantly associated

with identification scores which reflect high interest and commitment to a student's field of study.

Further analysis did not help to clarify some of the particular reasons for this finding. The apparent contradictions between this research project and the study of Davis (1964) suggest two possible interpretations: 1) that in the past twelve years since Davis collected his sample, college students have become less preoccupied with making money and more concerned with opportunities to be creative and helpful to other people; 2) that liberal arts colleges in general, and Eastern Illinois University in particular, place a greater emphasis on originality and people-oriented values than other types of colleges and universities.

Our exploratory analysis also indicates a significant difference between those persons who reported that they were somewhat pressured to choose their present major by other people and those students who maintained that their choice of major was their own personal decision. As Table 10-B shows, 56% of those persons who reported no such pressures scored high on the identification scale compared with only 28% of those who felt that they were forced into their present major. Controlling for sex, however, seems to indicate that this relationship is strongest among males and very weak and not significant for females. Future research might attempt to measure this relationship using several items which are more subtle and valid than the item used in our study.

Table 9

OCCUPATIONAL VALUES AND IDENTIFICATION WITH MAJOR:
(A) RELATIONSHIP WHEN CONTROLLING FOR SEX AND
(B) ORIGINAL RELATIONSHIP

	(A) CONTINGENT ASSOCIATIONS						(B) TOTAL ASSOCIATION		
IDENTIFI-CATION WITH MAJOR	Males			Females			Total Sample		
	Occupational Values			Occupational Values			Occupational Values		
	Money	Original	People	Money	Original	People	Money	Original	People
Low	59% (30)	43% (18)	42% (36)	63% (22)	44% (14)	39% (77)	61% (52)	44% (32)	40% (113)
High	41 (21)	56 (23)	58 (50)	37 (13)	56 (18)	61 (122)	39 (34)	56 (41)	60 (172)
	100% (51)	100% (41)	100% (86)	100% (35)	100% (32)	100% (199)	100% (86)	100% (73)	100% (285)
	Total N= 178			Total N= 266			Total N= 444		
ASSOCIATION LEVEL	Gamma= .223			Gamma= .302			Gamma= .268		
SIGNIFICANCE LEVEL	Chi-Square= 3.928 P < .05			Chi-Square= 7.136 P < .01			Chi-Square= 11.608 P < .001		

Table 10

PERCEIVED PRESSURES TO CHOOSE A PARTICULAR MAJOR AND IDENTIFICATION WITH THAT MAJOR:

(A) RELATIONSHIP WHEN CONTROLLING FOR SEX AND
(B) ORIGINAL RELATIONSHIP

	(A) CONTINGENT ASSOCIATIONS				(B) TOTAL ASSOCIATION	
IDENTIFICATION WITH MAJOR	Males		Females		Total Sample	
	Forced Choice of Major	Free Choice of Major	Forced Choice of Major	Free Choice of Major	Forced Choice of Major	Free Choice of Major
Low	85% (23)	46% (92)	57% (13)	42% (116)	72% (36)	44% (208)
High	15 (4)	54 (107)	43 (10)	58 (159)	28 (14)	56 (266)
	100% (27)	100% (199)	100% (23)	100% (275)	100% (50)	100% (474)
	Total N= 226		Total N= 298		Total N= 524	
ASSOCIATION LEVEL	Gamma= -.740		Gamma= -.281		Gamma= -.534	
SIGNIFICANCE LEVEL	Chi-Square= 14.435 P < .001		Chi-Square= 1.778 Not Significant		Chi-Square= 14.372 P < .001	

II. STRENGTH OF SELF-CONCEPT

II. STUDENTS WHO HIGHLY IDENTIFY WITH THEIR MAJORS WILL HAVE STRONGER SELF-CONCEPTS THAN THOSE WHO DO NOT SO IDENTIFY. (p. 24)

This second major hypothesis was supported by our study. As Table 11-C shows, 60% of the students who highly identified with their majors also scored high on the strength of self-concept scale compared with only 38% of those students who scored low on the identification scale. This relationship was significant beyond the .001 level. The correlation coefficient (gamma= .419) was one of the strongest and most stable findings in this research study. Tables 11-A and 11-B further substantiate the evidence indicating the importance of occupational identification in terms of a student's sense of direction and long-range goals. Both experience in major and time in major were significantly related to scores on the identification measure. However, as these two tables show, their direct influence on the strength of a student's self-concept is negligible.

One of the purposes for testing this hypothesis was to determine whether students attending a small liberal arts college would confirm the findings of Adamek and Goudy in their study of Purdue University students.[7] We believe that the findings for

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[7]Unfortunately, an exact replication of the previous study was not followed in our research design. In the Purdue University study, students who had changed majors were asked to respond to the questionnaire in terms of their previous majors, while students who had never changed majors responded in terms of their present majors. All of the respondents in the present study answered the statements in reference to their present majors.

our sample of students adequately demonstrate that the occupational identification model is equally appropriate for the study of undergraduates at two universities with quite different orientations.

> IIA. Students with rather high grade point averages will have stronger self-concepts than students with relatively low grade point averages. (p. 25)

This hypothesis was not supported by our findings. Students who had high grade point averages did not have stronger self-concepts than persons with lower grade point averages (Table 12-B). Failure to confirm this hypothesis was somewhat surprising since we had prior evidence to indicate that academic achievement and identification with major were interdependent (see Table 26-A in Appendix E). Table 12-A shows the relationship between academic achievement and strength of self-concept when controlling for identification with present major. Among students who scored high on the identification with major scale, the previous evidence to support the null hypothesis is maintained. For persons who indicated low interest and committment to their field, however, there is a low inverse relationship between academic achievement and strength of self-concept. Although this difference is not significant at the .05 level, and the correlation is not very strong (gamma= -.221), the relationship does provide the opportunity for some interesting speculation. If our evidence is valid and not simply the result of uncontrolled variables or chance factors, this finding would lead to the conclusion that high academic

achievers who do not develop a great deal of interest and commitment to their major field are more likely than other students to lack a firm sense of direction and purpose. Future researchers might attempt to discover whether they obtain a similar finding for their sample of students.

Table 11

COMPARISON OF QUARTERS IN MAJOR, COURSES IN MAJOR, AND IDENTIFICATION WITH MAJOR AND THEIR INFLUENCE ON THE STRENGTH OF SELF-CONCEPT:

(A) QUARTERS IN MAJOR AND STRENGTH OF SELF-CONCEPT
(B) COURSES IN MAJOR AND STRENGTH OF SELF-CONCEPT
(C) IDENTIFICATION WITH MAJOR AND STRENGTH OF SELF-CONCEPT

STR NGTH OF SELF-CONCEPT	(A) TOTAL ASSOCIATION Quarters in Major Less than Six Quarters	(A) TOTAL ASSOCIATION Quarters in Major Six or More Quarters	(B) TOTAL ASSOCIATION Courses in Major Less than Eight Courses	(B) TOTAL ASSOCIATION Courses in Major Eight or More Courses	(C) TOTAL ASSOCIATION Identification with Major Low Identification	(C) TOTAL ASSOCIATION Identification with Major High Identification
Weak	51% (112)	51% (152)	47% (88)	53% (174)	62% (152)	40% (113)
Strong	49 (109)	49 (149)	53 (98)	47 (157)	38 (92)	60 (167)
	100% (221)	100% (301)	100% (186)	100% (331)	100% (244)	100% (280)
	Total N= 522		Total N= 517		Total N= 524	
ASSOCIATION LEVEL	Gamma= .004		Gamma= -.105		Gamma= .419	
SIGNIFICANCE LEVEL	Chi-Square= 0.002 Not Significant		Chi-Square= 1.316 Not Significant		Chi-Square= 25.103 p < .001	

Table 12

ACADEMIC ACHIEVEMENT AND STRENGTH OF SELF-CONCEPT:

(A) RELATIONSHIP WHEN CONTROLLING FOR IDENTIFICATION WITH MAJOR AND (B) ORIGINAL RELATIONSHIP

	(A) CONTINGENT ASSOCIATIONS				(B) ORIGINAL RELATIONSHIP	
STRENGTH OF SELF-CONCEPT	LOW IDENTIFICATION Grade Point Average		HIGH IDENTIFICATION Grade Point Average		TOTAL SAMPLE Grade Point Average	
	Low	High	Low	High	Low	High
Weak	58% (75)	68% (60)	42% (51)	40% (55)	50% (126)	51% (115)
Strong	42 (55)	32 (28)	58 (72)	60 (81)	50 (127)	49 (109)
	100% (130)	100% (88)	100% (123)	100% (136)	100% (253)	100% (224)
	Total N= 218		Total N= 259		Total N= 477	
ASSOCIATION LEVEL	Gamma= -.222		Gamma= .021		Gamma= -.031	
SIGNIFICANCE LEVEL	Chi-Square= 2.449 Not Significant		Chi-Square= 0.028 Not Significant		Chi-Square= 0.112 Not Significant	

IIA. EXPLORATORY ANALYSIS OF VARIABLES RELATED TO STRENGTH OF SELF-CONCEPT

Our exploratory analysis revealed a rather unexpected finding associated with the structure of the various fields. This variable was primarily introduced into our analysis to discover whether the structure of a major would affect the degree of identification with that field. Our analysis showed that identification scores among students in the various fields did not significantly differ--with the one exception that students in education scored remarkably high on the identification with major scale.

We did not expect to find that the structure of a field would be associated with variations on the strength of self-concept scale. However, as Table 13-A indicates, persons in the structured majors (business, education, and science) had significantly stronger self-concepts than students in the unstructured majors (social science and humanities). This relationship was maintained when education majors were excluded from the analysis (Table 13-B). Although the strength of association is not very strong (gamma= .212), the relationship is significant at the .05 level.

When we control for identification with major, however, the previous finding disappears for students who scored low on the identification scale, but is considerably higher (gamma= .352) for persons who indicated a high degree of commitment to their major field and future occupational goals. Although

Table 13

STRUCTURE OF MAJOR AND STRENGTH OF SELF-CONCEPT:

(A) RELATIONSHIP FOR TOTAL SAMPLE
(B) RELATIONSHIP FOR ALL MAJORS EXCEPT EDUCATION

	(A)		(B)	
STRENGTH OF SELF-CONCEPT	Total Sample		All Majors Except Education	
	Structure of Major		Structure of Major	
	Structured Majors	Unstructured Majors	Structured Majors	Unstructured Majors
Weak	47% (127)	58% (103)	47% (72)	58% (103)
Strong	53 (144)	42 (76)	53 (80)	42 (74)
	100% (271)	100% (179)	100% (152)	100% (177)
	Total N= 450		Total N= 329	
	Gamma= .212 Chi-Square= 4.919 P < .05		Gamma= .215 Chi-Square= 3.848 P < .05	

this finding in Table 14-A does appear rather baffling at first sight, we believe that the relationship is sufficiently stable to deserve further comment. It would seem that students in structured majors who have attained a high level of interest in their majors and related occupational goals are somewhat more likely than students in unstructured majors to nave a strong sense of direction and long-range goals. Although we do not have the statistical evidence to support our conjecture, it is our belief that this finding is primarily the result of different occupational opportunities available to the students after graduation. Students in business, education and science would seem to have a more definite career objective in mind, while persons in the social sciences and humanities are much less certain.

Table 14

STRUCTURE OF MAJOR AND STRENGTH OF SELF-CONCEPT:

(A) RELATIONSHIP WHEN CONTROLLING FOR IDENTIFICATION WITH MAJOR AND
(B) ORIGINAL RELATIONSHIP

	(A) CONTINGENT ASSOCIATIONS				(B) TOTAL ASSOCIATIONS	
	Low Identification		High Identification		Total Sample	
STRENGTH OF SELF-CONCEPT	Structure of Major		Structure of Major		Structure of Major	
	Structured Majors	Unstructured Majors	Structured Majors	Unstructured Majors	Structured Majors	Unstructured Majors
Weak	62% (73)	62% (60)	36% (54)	54% (43)	47% (127)	58% (103)
Strong	38 (45)	38 (38)	64 (99)	46 (38)	53 (144)	42 (76)
	100% (118)	100% (98)	100% (155)	100% (81)	100% (271)	100% (179)
	Total N=216		Total N= 234		Total N= 450	
ASSOCIATION LEVEL	Gamma= .003		Gamma= .352		Gamma= .212	
SIGNIFICANCE LEVEL	Chi-Square= 0.000 Not Significant		Chi-Square= 7.164 P < .01		Chi-Square= 4.919 P < .05	

We also attempted to investigate research evidence from other studies which would tend to indicate that students who have previously changed majors have somewhat weaker self-concepts than students who have never changed. As Table 15-A demonstrates, however, there is no significant difference among persons who have never changed majors, those who have changed one time, and those who have changed more than one time in respect to their scores on the self-concept scale. On the other hand, when this relationship was measured by the type of previous change, a very interesting finding emerges. Only 42% of those persons who had made an important change in their field of study scored high on the strength of self-concept measure, while 48% of those persons who had never changed and 61% of those students who had made only a minor change highly identify with their majors. This relationship is significant at the .025 level, and the strength of the association (gamma= .019) is deceptively low because the relationship is not linear. Once again our evidence tends to suggest that the number of previous major changes is a relatively unimportant variable in our analysis. Instead, the significant factor is the nature or type of the change in major. Our analysis would strongly suggest that students who change to a related field have done so because they have achieved a more definite sense of their academic and vocational goals. Persons who have made a rather serious change affecting their college plans, however,

Table 15

PREVIOUS CHANGE OF MAJOR AND STRENGTH OF SELF-CONCEPT:
(A) TOTAL RELATIONSHIP BY TYPE OF PREVIOUS CHANGE
(B) TOTAL RELATIONSHIP BY NUMBER OF PREVIOUS CHANGES

STRENGTH OF SELF-CONCEPT	(A) Total Sample — Type of Previous Change			(B) Total Sample — Number of Previous Changes		
	No Previous Changes	Related Change	Unrelated Change	No Previous Changes	One Previous Change	More than One Previous Change
Weak	52% (154)	39% (40)	58% (71)	52% (153)	48% (79)	52% (33)
Strong	48 (144)	61 (62)	52 (52)	48 (143)	52 (86)	48 (30)
	100% (298)	100% (102)	100% (123)	100% (296)	100% (165)	100% (63)
	Total N= 523			Total N= 524		
	Gamma= -.019 Chi-Square= 7.923 P < .005			Gamma= .012 Chi-Square= 0.154 Not Significant		

appear to be somewhat uncertain about their long-range goals.

Table 16-A further helps to reconcile some of the apparent contradictions in the research literature involving similar relationships.[8] Among persons who have completed less than six quarters in their present majors, the original finding becomes stronger (gamma= -.326). For students who have already completed six or more quarters in their present major, however, this relationship completely disappears. This evidence would seem to demonstrate that the feelings of uncertainty and disorientation among persons who have made an important decision affecting their college careers are only of a temporary duration.

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[8] The original relationship was reclassified into two categories to contrast persons who have made a major change with persons who have never changed or made only a minor change in their college curricula.

Table 16

TYPE OF MAJOR CHANGE IN THE PAST AND STRENGTH OF SELF-CONCEPT:

(A) RELATIONSHIP WHEN CONTROLLING FOR QUARTERS IN PRESENT MAJOR AND
(B) ORIGINAL RELATIONSHIP

	(A) CONTINGENT ASSOCIATIONS				(B) TOTAL ASSOCIATION	
STRENGTH OF SELF-CONCEPT	Less than Six Quarters Type of Previous Change		Six or More Quarters Type of Previous Change		Total Sample Type of Previous Change	
	None or Related Change	Unrelated Change	None or Related Change	Unrelated Change	None or Related Change	Unrelated Change
Weak	46% (69)	62% (43)	50% (125)	51% (27)	48% (194)	58% (71)
Strong	54 (82)	38 (26)	50 (123)	49 (26)	52 (206)	42 (52)
	100% (151)	100% (69)	100% (248)	100% (53)	100% (400)	100% (123)
	Total N= 220		Total N= 301		Total N= 523	
ASSOCIATION LEVEL	Gamma= -.326		Gamma= -.011		Gamma= -.184	
SIGNIFICANCE LEVEL	Chi-Square= 5.237 P < .025		Chi-Square= 0.005 Not Significant		Chi-Square= 3.202 P < .10	

Our exploratory analysis also shows that persons who reported that they were pressured into their present majors scored consistently lower on the strength of self-concept scale than persons who reported that they were not influenced by such pressures (Table 17-B). Although this relationship is significant at the .005 level, the correlation measure (gamma= .425) is probably inflated by the low number of cases in two of the cells. Our analysis also indicates that this relationship is strongest among persons who do not score high on the identification with major scale (Table 17-A). We believe that this finding tends to reinforce our previous suspicions that this item is unduly influenced by rationalizations on the part of those students who have failed to develop a high degree of interest and commitment to their present fields.

Our data likewise reveal that marital status is significantly related to strength of self-concept for our sample of respondents. Table 18-B shows that 62% of the married students in our study were classified as having strong self-concepts, while only 45% of the single students scored high on this scale. This relationship was significant at the .005 level, and the correlation measure (gamma= .425) was moderate in strength. When we control for sex, the original relationship is maintained for females (gamma= .407), but slightly reduced for males (gamma= .235). Although this finding was only indirectly related to the major concerns of this study, it does demonstrate that other variables were significantly related to a student's strength of self-concept.

Table 17

PERCEIVED PRESSURES TO CHOOSE A PARTICULAR MAJOR AND STRENGTH OF SELF-CONCEPT:

(A) RELATIONSHIP WHEN CONTROLLING FOR IDENTIFICATION WITH MAJOR AND
(B) ORIGINAL RELATIONSHIP

	(A) CONTINGENT ASSOCIATIONS				(B) TOTAL ASSOCIATION	
STRENGTH OF SELF-CONCEPT	Low Identification		High Identification		Total Sample	
	Forced Choice of Major	Free Choice of Major	Forced Choice of Major	Free Choice of Major	Forced Choice of Major	Free Choice of Major
Weak	78% (28)	60% (124)	50% (7)	40% (106)	70% (35)	49% (230)
Strong	22 (8)	40 (84)	50 (7)	60 (160)	30 (15)	51 (244)
	100% (36)	100% (208)	100% (14)	100% (266)	100% (50)	100% (474)
	Total N= 244		Total N= 280		Total N= 524	
ASSOCIATION LEVEL	Gamma= .407		Gamma= .203		Gamma= .425	
SIGNIFICANCE LEVEL	Chi-Square= 4.310 P < .05		Chi-Square= 0.569 Not Significant		Chi-Square= 8.346 P < .005	

Table 18

MARITAL STATUS AND STRENGTH OF SELF-CONCEPT:

(A) RELATIONSHIP WHEN CONTROLLING FOR SEX AND
(B) ORIGINAL RELATIONSHIP

	(A) CONTINGENT ASSOCIATIONS				(B) TOTAL ASSOCIATION	
STRENGTH OF SELF-CONCEPT	MALES		FEMALES		TOTAL SAMPLE	
	Marital Status		Marital Status		Marital Status	
	Single	Married	Single	Married	Single	Married
Weak	53% (79)	41% (31)	56% (137)	34% (18)	55% (216)	38% (49)
Strong	47 (71)	59 (45)	44 (109)	66 (34)	45 (180)	62 (79)
	100% (150)	100% (76)	100% (246)	100% (52)	100%	100%
	Total N= 226		Total N= 298		Total N= 524	
ASSOCIATION LEVEL	Gamma= .235		Gamma= .407		Gamma= .318	
SIGNIFICANCE LEVEL	Chi-Square= 2.848 P < .10		Chi-Square= 7.639 P < .01		Chi-Square= 10.237 P < .01	

III. PLANS TO CHANGE MAJORS

III. STUDENTS WHO HIGHLY IDENTIFY WITH THEIR MAJORS WILL BE LESS LIKELY TO PLAN ON SWITCHING MAJORS THAN STUDENTS WHO DO NOT HIGHLY IDENTIFY WITH THEIR MAJORS. (p. 27)

Our data support this third major hypothesis. Only 8% of those students scoring high on the identification scale had any plans to change majors, while 16% of those persons who did not highly identify with their majors had either planned or considered a change of majors (Table 19). This finding was significant at the .005 level, and the correlation coefficient (gamma= -.394) is moderate in strength. As Table 19-A demonstrates, this relationship holds constant regardless of time in major. The relationship is not quite as strong for persons who have already completed six or more quarters in their present major (gamma= -.326), but the finding is still significant at the .05 level for the directional hypothesis.

IIIA. Among students who do not highly identify with their majors, those persons who have strong self-concepts will be more likely to have plans to change their majors than students who have relatively weak self-concepts. (p. 27)

This relationship was not confirmed in our data which, in fact, tend to suggest just the opposite conclusion. For the original relationship between strength of self-concept and plans to change majors, Table 20 shows that 15% of those persons with weak self-concepts have some indefinite or definite plans to change

fields, while only 9% of those students with strong self-concepts have such plans. This relationship was significant at the .05 level, and the measure of association was rather low (gamma= -.278). When controlling for identification, however, the relationship becomes even stronger (gamma= -.337), but is only significant at the .10 level. This finding would suggest that among persons who score low on the identification scale, those persons who have weaker self-concepts are more likely to decide to switch majors.

This corollary hypothesis was introduced into our study in order to confirm a previous finding by Adamek and Goudy (1966: 191). Contradictions between the findings for our sample of students and the students at Purdue University may best be explained by examining the different procedures involved. Although neither of the methods is perfect, we believe that the procedure used in this study has certain distinct advantages: 1) our relationship attempts to correlate present strength of self-concept with present plans to change majors, while Adamek and Goudy employ the association between present strength of self-concept and previous change in major to obtain their finding; 2) all the respondents in our sample answered the questionnaire in terms of their present major, while Purdue University students who had changed majors responded to the statements in terms of their previous majors; 3) our study was able to avoid some of the biases which Adamek and Goudy (1966: 188) recognize in their study.

Table 19

IDENTIFICATION WITH MAJOR AND PLANS TO CHANGE MAJORS:
(A) RELATIONSHIP WHEN CONTROLLING FOR QUARTERS IN MAJOR AND (B) ORIGINAL RELATIONSHIP

	(A) CONTINGENT ASSOCIATIONS				(B) TOTAL ASSOCIATION	
PLANS TO CHANGE MAJORS	LESS THAN SIX QUARTERS		SIX OR MORE QUARTERS		TOTAL SAMPLE	
	Identification		Identification		Identification	
	Low	High	Low	High	Low	High
No Plans	81% (100)	92% (90)	86% (103)	92 (167)	84% (204)	92% (258)
Indefinite to Definite Plans to Change	19 (23)	8 (8)	14 (17)	8 (14)	16 (40)	8 (22)
	100% (123)	100% (98)	100% (120)	100% (181)	100% (244)	100% (280)
	Total N= 221		Total N=301		Total N=524	
ASSOCIATION LEVEL	Gamma= -.443		Gamma= -.326		Gamma= -.394	
SIGNIFICANCE LEVEL	Chi-Square= 5.021 P< .025		Chi-Square= 3.231 P < .10 Significant at the .05 level for the directional hypothesis		Chi-Square= 9.107 P < .005	

Table 20

STRENGTH OF SELF-CONCEPT AND PLANS TO CHANGE MAJORS:

A) RELATIONSHIP WHEN CONTROLLING FOR IDENTIFICATION WITH MAJOR AND B) ORIGINAL RELATIONSHIP

	(A) CONTINGENT ASSOCIATIONS				(B) TOTAL ASSOCIATION	
PLANS TO CHANGE MAJORS	LOW IDENTIFICATION		HIGH IDENTIFICATION		TOTAL SAMPLE	
	Self-Concept		Self-Concept		Self-Concept	
	Weak	Strong	Weak	Strong	Weak	Strong
No Plans	80% (122)	89% (82)	92% (104)	92% (154)	85% (226)	91% (236)
Indefinite to Definite Plans to Change	20 (30)	11 (10)	8 (9)	8 (13)	15 (39)	9 (23)
	100% (152)	100% (92)	100% (113)	100% (167)	100% (265)	100% (259)
	Total N= 244		Total N= 280		Total N= 524	
ASSOCIATION LEVEL	Gamma= -.337		Gamma= -.012		Gamma= -.278	
SIGNIFICANCE LEVEL	Chi-Square= 3.228 P < .10		Chi-Square= 0.003 Not Significant		Chi-Square= 4.227 P < .05	

IIIA. EXPLORATORY ANALYSIS OF VARIABLES RELATED TO PLANS TO CHANGE MAJORS

Our exploratory analysis reconfirms the evidence in previous research findings that persons with lower grade point averages are more likely to have changed majors in the past and are more likely to plan on changing majors in the future (see Table 27 in Appendix F). This finding was not directly related to the main purposes of this study, but it does point out that our sample of students support the findings in other studies. We attempted to control for identification with major in analyzing this relationship, but the finding was not significantly affected by the introduction of this test factor.

Our data also indicate that married persons are more likely to have plans to change their majors than single students. Table 21-B shows that 34% of the married students in our sample are planning or considering a change in major, while only 21% of the single students indicated similar plans. This relationship was only significant at the .10 level, and not very strong (gamma= .259). However, as Table 22-B shows, marital status is also positively associated with previous changes in major. Although this finding is likewise only significant at the .10 level, the relationship is maintained within the contingent associations when controlling for year in college. It is especially strong among freshmen and sophomores (although the gamma coefficient for this association is inflated by the low number of cases in

two of the cells), and rather weak for juniors and seniors but still in the predicted direction.

Since marital status was related to strength of self-concept, we controlled for this variable in analyzing the original relationship between marital status and plans to change majors. Table 21-A shows that the original finding becomes considerably stronger for married persons who score low on the strength of self-concept scale (gamma= .450), but is negligible for those persons with strong self-concepts. Although the relationship for students with relatively weak self-concepts is significant at the .01 level, the specific reasons for this finding are unclear at the present time. It is possible that married persons who do not have a strong sense of direction and long-range goals may be influenced in their decisions to change majors by their marital partners. Further study will help to clarify the true nature of this finding. In general, however, we believe that this evidence does support the idea that marital and family commitments often result in decisions which influence these students' vocational and academic plans.

Our exploratory findings also suggest that students who reported that they were strongly encouraged by other persons to enter their present field were more likely to have plans to switch to another field (Table 23). This relationship is significant at the .025 level, and the correlation measure is moderate in strength (gamma= .401). We reiterate, however, that one should

be reluctant to assign too much significance to any finding involving this rather unreliable measure. Nevertheless, this relationship does suggest that persons who believe they were solely responsible for their academic and vocational choices are less likely to consider changing those decisions than persons who believe that these decisions were forced on them by other persons.

Although we also attempted to examine the influence of sex role conflicts and participation in activities that were not related to the student's major, our analysis did not reveal any consistent findings for these variables. One of the major problems in this regard was the low number of persons who either planned on switching majors or were presently considering such a change. Thus, although our analysis failed to show that these variables were associated with plans to change majors, future studies would probably be wise to include these factors in their studies.

Table 21

MARITAL STATUS AND PLANS TO CHANGE MAJORS:

(A) RELATIONSHIP WHEN CONTROLLING FOR STRENGTH OF SELF-CONCEPT AND
(B) ORIGINAL RELATIONSHIP

	(A) CONTINGENT ASSOCIATIONS				(B) TOTAL ASSOCIATION	
PLANS TO CHANGE MAJORS	Weak Self-Concept		Strong Self-Concept		Total Sample	
	Marital Status		Marital Status		Marital Status	
	Single	Married	Single	Married	Single	Married
No Plans	88% (190)	74% (36)	92% (165)	90% (71)	77% (355)	66% (41)
Indefinite to Definite Plans to Change	12 (26)	26 (13)	8 (15)	10 (8)	23 (107)	34 (21)
	100% (216)	100% (49)	100% (180)	100% (79)	100% (462)	100% (62)
	Total N= 265		Total N= 259		Total N= 524	
ASSOCIATION LEVEL	Gamma= .450		Gamma= .107		Gamma= .259	
SIGNIFICANCE LEVEL	Chi-Square= 6.685 P < .01		Chi-Square= 0.218 Not Significant		Chi-Square= 3.397 P < .10	

Table 22

MARITAL STATUS AND PREVIOUS CHANGE OF MAJOR:

(A) RELATIONSHIP WHEN CONTROLLING FOR YEAR IN COLLEGE AND
(B) ORIGINAL RELATIONSHIP

	(A) CONTINGENT ASSOCIATIONS				(B) TOTAL ASSOCIATION	
NUMBER OF PREVIOUS CHANGES	Freshmen and Sophomores		Juniors and Seniors		Total Sample	
	Marital Status		Marital Status		Marital Status	
	Single	Married	Single	Married	Single	Married
No Previous Change	72% (67)	46% (6)	55% (166)	50% (57)	59% (233)	50% (63)
One or More Previous Changes	28 (26)	54 (7)	45 (137)	50 (58)	41 (163)	50 (65)
	100% (93)	100% (13)	100% (303)	100% (115)	100% (396)	100% (128)
	Total N= 106		Total N= 418		Total N= 524	
ASSOCIATION LEVEL	Gamma= .501		Gamma= .104		Gamma= .192	
SIGNIFICANCE LEVEL	Chi-Square= 3.566 P < .10		Chi-Square= 0.913 Not Significant		Chi-Square= 3.642 P < .10	

Table 23

PERCEIVED PRESSURES TO CHOOSE A PARTICULAR MAJOR AND PLANS TO CHANGE MAJORS:

TOTAL RELATIONSHIP

PLANS TO CHANGE MAJORS	Total Sample Perceived Choice of Maj.	
	Forced Choice	Free Choice
No Plans	78% (39)	89% (423)
Indefinite to Definite Plans to Change	22 (11)	11 (51)
	100% (50)	100% (474)
	Total N= 524	

Gamma= .401
Chi-Square= 5.478
P < .025

CHAPTER FIVE: SUMMARY AND CONCLUSIONS

A. SUMMARY OF MAJOR FINDINGS

We began this thesis with a quotation from Kenneth Feldman in which he comments on the myriad of correlations and associations which have been accumulated in the studies of college students. Percentages, chi-squares, significance levels, and gamma coefficients also abound in this research project. The purpose of this section is to present a brief summary of the major findings of this study without citing any statistical measures to further confuse the reader who is not familiar with statistical terminology and sociological jargon. It is not our intention to reiterate all the cautions and limitations of this research project. Persons who are interested in these important details are encouraged to consult Chapter Three which elaborates some of the major weaknesses and problems of our research design, instruments, and sample population.

I. IDENTIFICATION WITH MAJOR

Our analysis indicates that experience and training during the college years are directly related to a student's degree of interest and commitment to his major field and occupational goals. Nevertheless, our finding was not as strong as expected--thus suggesting that many other factors influence this process. Although our study found little variance among the different majors, persons in education did tend to score exceptionally high

on the measure used in this study. This evidence was consistent with the findings of a similar study of Purdue University students (Adamek and Goudy, 1966: 195). Future studies might attempt to examine some of the specific reasons for this finding.

We also discovered that persons who have made important decisions affecting their educational and vocational plans during college are somewhat less likely to demonstrate the same intensity of interest and involvement in their new majors as those students who have not made such changes in their academic programs. Our analysis indicates, however, that these students are "atypical" only in the sense that they have made such a decision. Once they have had the opportunity to get oriented to their new curriculum and career goals, they are just as likely to develop high levels of interest and commitment to their new majors as other students. In fact, our data would tend to indicate that the cultural and bureaucratic pressures to complete their education within a limited period of time serve as an additional inducement to the development of occupational identification.

Responses from our sample of students also suggest that those persons who believe they were solely responsible for their decision to enter their present field are more likely to score high on the identification with major scale than students who feel that other persons strongly encouraged them to enter their present major. Further analysis of this finding will be needed,

however, since we have several reasons to believe that similar findings were biased by the rather invalid measurement used for this variable.

The data for our sample of students show that persons who are primarily interested in the financial aspect of future careers tend to be rather uncommitted to their present majors and related occupational goals. Persons who prefer careers which offer opportunities to be original and work with people score considerably higher on the identification with major scale used in this study.

Our analysis failed to demonstrate that sex, marital status, participation in extracurricular activities during college, social class background, or size of the different departmental majors have any influence on an individual student's tendency develop interest and commitment to his major field and career goals.

II. STRENGTH OF SELF-CONCEPT

The most important finding in respect to this variable was that persons who highly identify with their majors also demonstrate a greater sense of direction and long-range goals than persons who have failed to develop much interest in their present field of study. We also found that this relationship was strongest for persons in the fields of business, education, and science who scored high on the identification with major scale. This finding would suggest that these students have more definite career objectives in mind than similar students in the social

sciences and humanities.

Consistent with our previous evidence, our data indicate that persons who have changed their academic program to a closely related field are somewhat more likely to have strong self-concepts than other students. On the other hand, students who have made a significant decision affecting their academic or vocational plans appear to be somewhat disoriented by the initial experience in their new field. Once these students have had some time to adjust to their newly acquired goals, however, they are just as likely as other students to demonstrate a strong sense of purpose and direction.

We found that marital status was also directly related to a student's strength of self-concept--a finding that appears especially strong for females, but also holds to a lesser extent for our male respondents.

Our analysis did not demonstrate that either sex or academic achievement was significantly related to a person's sense of direction and career goals. Although some previous studies have found that females are more likely to encounter role and identity conflicts than males, our findings are consistent with Adamek and Goudy's (1966: 193) analysis of Purdue University students which also failed to find any significant differences using this same self-concept scale.

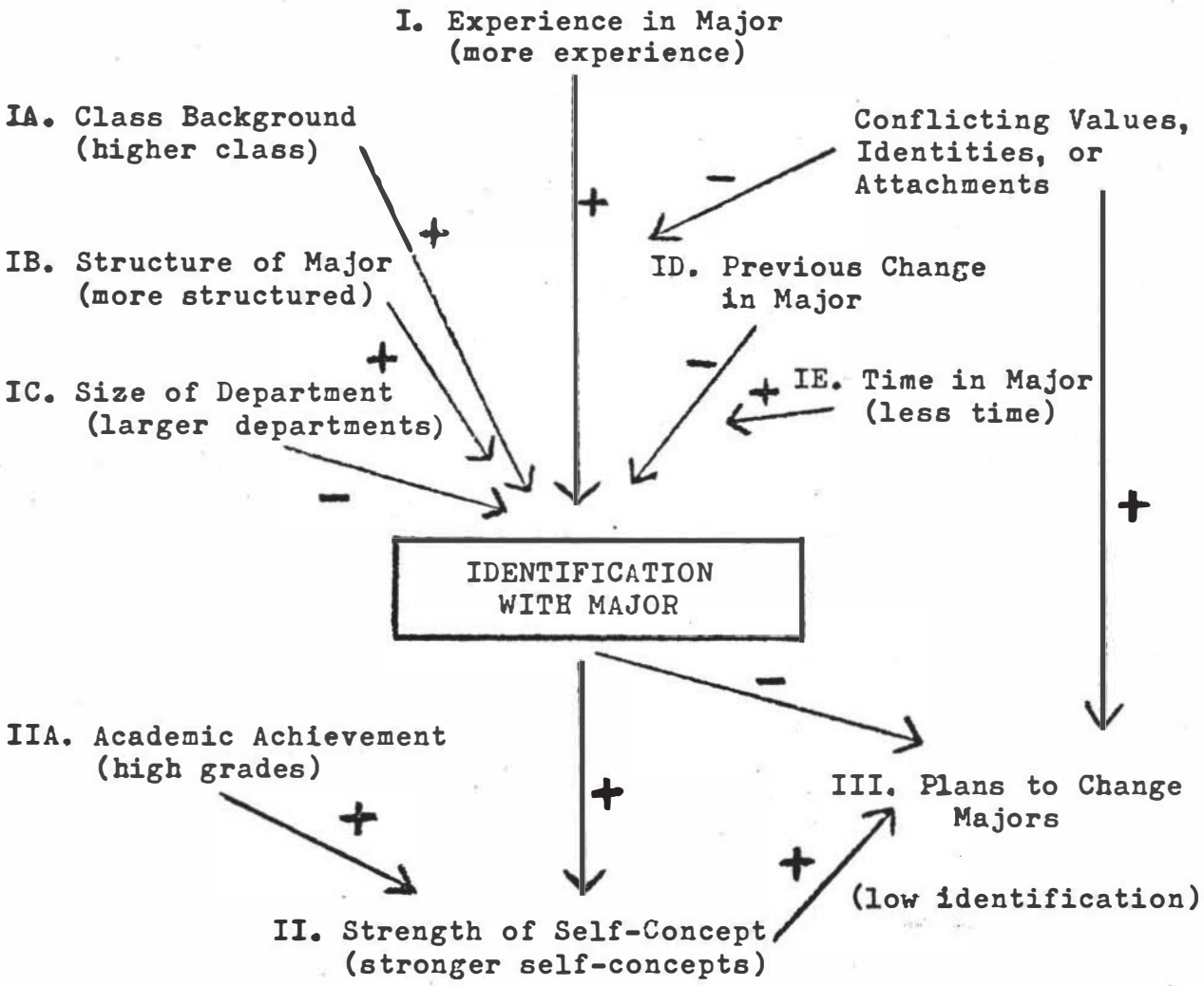
III. PLANS TO CHANGE MAJORS

As we had predicted in our major hypothesis, students who highly identify with their academic and vocational goals are less likely to plan on switching their majors than students who do not have the same degree of interest and committment. Although our evidence contradicts a previous finding by Adamek and Goudy (1966: 191), the data for our sample show that among those students who score low on the identification scale, persons who have relatively weak self-concepts are more likely to have plans to switch majors than those students who have a strong sense of direction and purpose. Further research, however, will be needed to confirm the validity of this finding.

Married persons in our sample were somewhat more likely to plan on a change in their academic program than single persons, but the relationship was not very strong. This finding seems to be especially strong among persons with relatively weak self-concepts. We would thus tend to conclude that for these students the additional responsibilities of married life have an important influence on their educational and career plans.

Our exploratory analysis also suggests that persons who believe they were forced into their present major by parents, friends, or teachers are more likely to plan or consider changing to another field. Future studies employing a more subtle and valid measurement for this variable would help to determine whether this relationship is as strong as our data tend to indicate.

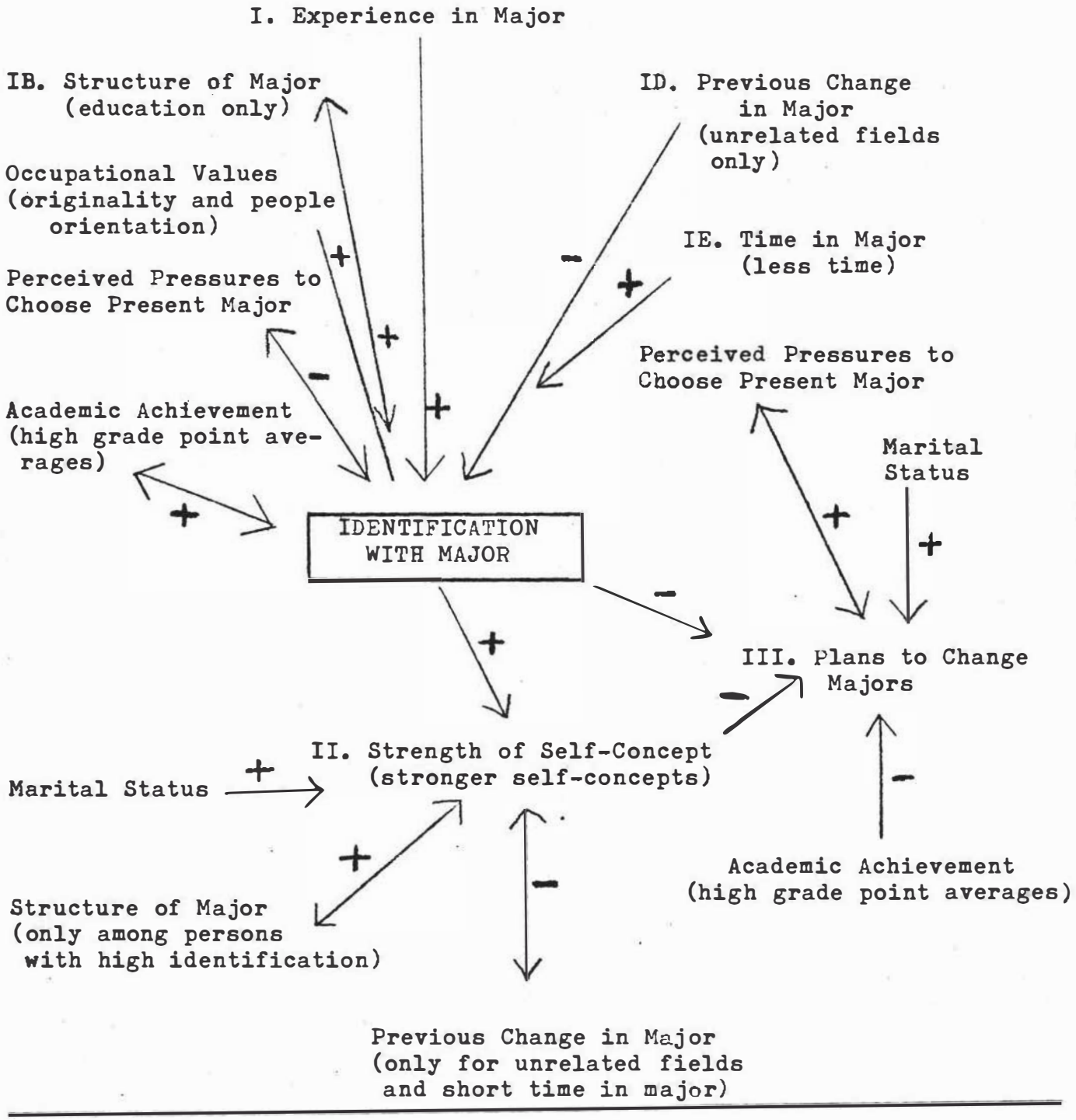
DIAGRAM OF PREDICTED RELATIONSHIPS



BACKGROUND (CONTROL) VARIABLES

1. Age
2. Sex
3. Population of Hometown
4. Population of High School
5. Year in College
6. Marital Status
7. Religion
8. Residence during College
9. Attendance at Previous College
10. Undergraduate Students Who Are Native-born American Citizens

REVISED DIAGRAM BASED ON THE MAJOR FINDINGS OF THIS STUDY



[9]Although the present study has not been strictly concerned with causal analysis, we believe that some of the relationships are more easily classified than others. In this diagram, a single-headed arrow is used to indicate the probable direction of the relationship. Double-headed arrows are used to indicate that these variables may possibly have reciprocal effects. When our analysis does not suggest any probable direction or reciprocal effects, the two variables are simply connected by a straight line.

B. CONCLUSION

In 1951 Nelson N. Foote introduced the concept of identification to sociologists in an article in the American Sociological Review. A few years later Howard S. Becker and James Carper incorporated this concept into a model for the development of occupational identification among graduate students. Although the present study will probably not be recorded in the sociological history of this concept, we do believe that our analysis demonstrates that occupational identities play an important role in the lives of college students on the undergraduate level. Furthermore, our study has shown that this model is equally appropriate for the analysis of students in schools as different as Purdue University and Eastern Illinois University. Perhaps the strongest evidence to support this conclusion is that all three of the major hypotheses in our study were significant beyond the .01 level. Although none of these relationships is extremely strong, we believe that this finding simply confirms much of the evidence in the sociological literature that a wide range of variables are associated with occupational and educational decision-making. Consistent with this reasoning, we have attempted to indicate a certain amount of skepticism about some of our strongest correlations which are not always the most reliable and meaningful in this study.

Perhaps the major weakness and limitation of this study has been the lack of a random sample of students from which we could generalize our findings. We have attempted, however, to indicate those findings which we think are heavily biased by the nonrepresentativeness of our respondents. Likewise this study has attempted to indicate those cases in which the evidence from our study is at variance with some of the previous findings in the research literature.

One of the major contributions of this thesis project is that it has helped to clarify some of the apparent contradictions in the literature concerned with the type of attributes of those students who decide to change majors. We believe that our analysis has clearly demonstrated the importance of considering the nature or type of change involved in the student's decision to change his academic program. Future studies which do not recognize the importance of this variable will no doubt continue to clutter the already abundant literature with more contradictory findings.

Although our exploratory research has been less conclusive in some of its results, our analysis seems to have uncovered a number of important variables which have been largely ignored in the literature on college students. Future studies which are able to develop more reliable and valid instruments are needed to confirm some of our findings.

One final suggestion would seem appropriate at this time. The great majority of studies using the concept of occupational

identification have been confined to the analysis of persons within a university setting. Undoubtedly the major reason for this preoccupation with graduate and undergraduate students is that they are the most accessible subjects for the student working on his thesis or dissertation. We would tend to agree with Slawski (1969: 234) that the model of occupational identification could be successfully applied to a wide range of settings. With slight modifications, it could be used to study how persons in such different fields as soldiers, priests, nurses, and police gradually acquire the motives, skills, and ideology of their various occupations and careers.

APPENDIX A

SAMPLE OF LETTER REQUESTING ASSISTANCE FROM PROFESSORS

Department of Sociology
Coleman Hall--Room 329
Eastern Illinois University
July 6, 1973

I am a graduate student in the Department of Sociology presently working on my thesis project for my Master's degree. My research study is concerned with some of the reasons why Eastern Illinois University students change their academic majors and how they feel about having done so. This study is being conducted under the guidance of my thesis director, Dr. Byron Munson, and along with the assistance of Mr. Art Snyder of the Advisement Center who is presently working on a related study. Hopefully, the information from this study will be useful in suggesting ways in which this University could be more effective in helping students with their educational and vocational planning.

The purpose of this letter is to ask you whether you would be willing to give me your assistance in my research study. Would it be possible for me to take about fifteen minutes of your class time by having the students complete my questionnaire at the beginning of the class hour? In this case, I would talk with you during the next few days about the time and day that would be most convenient for you. If this would be too inconvenient and time-consuming, would you be willing to give me permission to distribute my questionnaire to the students in your class before the class session begins? I would ask the students to fill out the questionnaire at home, and I would then collect the completed questionnaires when the students enter the classroom for the next class meeting. As a result, my distribution and collection of the questionnaires would in no way interfere with your class meeting time.

I am enclosing a sample of the questionnaire for you to look over if you wish. The questionnaire is anonymous, and I have specifically requested that students do not put their names on the questionnaire form.

Please indicate on the following page whether you would be willing to give me your assistance in my research project. Regardless of your response, please return the attached sheet as soon as possible. You may use the enclosed label with my address and return the following form to me through campus mail.

Thank you very much.

Sincerely yours,

Martin J. Schultz

APPENDIX B

THE QUESTIONNAIRE

Dear Student:

I am a graduate student in the Department of Sociology presently working on my thesis project for my Master's degree. My research study is concerned with some of the reasons why Eastern Illinois University students change their academic majors and how they feel about having done so. Hopefully, the information from this study will be useful in suggesting ways in which this university could be more effective in helping students with their educational and vocational planning.

Would you please assist me by filling out the following anonymous questionnaires? It will take you only about ten or fifteen minutes to complete the entire form. Please be sure to answer all the questions as frankly and accurately as possible. Your assistance will be very much appreciated.

PLEASE DO NOT PUT YOUR NAME ON THIS QUESTIONNAIRE.

1. Sex. (Circle One) 1. Male 2. Female

---

2. Are you a native-born U.S. citizen? 1. Yes 2. No

---

3. What is your present age?
(Circle One) 1. 17-20 2. 21-24 3. More than 25

---

4. What year are you in college? (Circle One)
1. Freshman 2. Sophomore 3. Junior 4. Senior 5. Graduate

---

5. What is your present religious preference? (Circle One)
1. Protestant 2. Roman Catholic 3. Jewish 4. Other 5. None

---

6. What is the major occupation of the head of the household in your parental family? _____

---

7. What is the population of the community which you look upon as your hometown during your high school days? (Circle One)
1. Farm 2. Less than 2500 3. 2500-25,000 4. 25,000-100,000
5. More than 100,000

---

8. How many student attended the high school from which you graduated?
1. Less than 200 2. 200-500 3. 500-1500 4. 1500-3000 5. More than 3000

---

9. Marital Status. (Circle One) 1. Single 2. Married
9a. If you are married, do you have any children? 1. Yes 2. No

---

10. Which of the following best describes where you have lived during the past year? (Circle One)
1. Fraternity or Sorority house 2. Off-campus room or apartment
3. Dormitory or other campus housing 4. With my parents 5. Other

---

11. In which of the following activities have you been an active participant at Eastern Illinois University. (Circle as many as apply)
1. Campus publications (newspaper, yearbook, etc.)
2. Campus group concerned with political, national, or world issues
3. Intercollegiate (varsity) athletics
4. Fraternity or sorority
5. Student government
6. Other (Please Specify: _____)

---

12. Which one of the following characteristics would be most important to you in picking a career or job? (Circle Only One)
    1. Making a lot of money
    2. Opportunities to be original and creative
    3. Opportunities to be helpful to others and useful to society
    4. None of the above

---

13. Have you ever changed majors since you entered college? (Circle One)
    1. Yes 2. No

13a. If you have changed majors, how many times have you changed? _____

13b. If you have changed majors, what was your previous major before you declared your present major? _____

---

14. What is your present academic major? _____
    (If you have a double major, indicate that major in which you have the most course credits.)

---

15. How many quarters have you completed since you declared your present major? (Circle One)
    0 1 2 3 4 5 6 7 8 9 10 11 12 13

---

16. How many courses have you completed in your present major? (Circle One)
    1. 0-3 2. 4-7 3. 8-11 4. 12-15 5. 16-19 6. More than 20

---

17. Do you have any plans to change your major at the present time? (Circle One) 1. Yes 2. No

---

17a. If you are considering the possibility of changing your major, which major are you most likely to switch to? _____

---

18. Are you a transfer student (that is, did you attend another college or junior college before coming to Eastern?) (Circle One)
    1. Yes 2. No

---

19. What is your present cumulative grade point average for all your college work at Eastern Illinois University? _____

Please put a check in the column which best represents your agreement or disagreement with each of the following statements about your present academic major.

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. My present major was not really my own choice--I was "urged" to select it because of the expressed or implied wishes of parents, teachers, friends, or others.					
	IDENTIFICATION WITH MAJOR SCALE				
2. I have become quite adept at applying new techniques I learned in my major field.	5	4	3	2	1
3. I feel the occupation I have chosen to prepare for is about the most worthwhile of all.	5	4	3	2	1
4. There are quite a few intellectual problems raised in the classes in my major field.	5	4	3	2	1
5. No professors in my major field have taken an interest in me.	1	2	3	4	5
6. I would never major in the same field if I could start over again.	1	2	3	4	5
7. I often argue the merits of the point of view of my major field over that of others.	5	4	3	2	1
8. Most of the subject matter in my major field consists of things well known--relatively few important problems.	1	2	3	4	5
9. I really have invested a great deal of time and effort in preparing for my chosen profession.	5	4	3	2	1
10. My interest in my major field is lower than for most people.	1	2	3	4	5
11. There are quite a few intellectual problems to be solved in my major field.	5	4	3	2	1

Please indicate that response which best represents your agreement or disagreement with each of the following statements.

		STRENGTH OF SELF-CONCEPT SCALE				
		Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1.	I seldom wonder where I am going.	5	4	3	2	1
2.	I feel at ease in new situations only after long periods of time.	1	2	3	4	5
3.	I have a clear idea of my occupational goals.	5	4	3	2	1
4.	I can usually determine my position in a new group in a short time.	5	4	3	2	1
5.	I often wonder where I am.	1	2	3	4	5
6.	I have a definite career objective in mind.	5	4	3	2	1

If you have previously changed majors, please continue answering the questions in the following section.
If you have never changed majors, you have completed the questionnaire.

STUDENTS WHO HAVE PREVIOUSLY CHANGED MAJORS ONLY

Please indicate whether you agree or disagree with each of the following statements by circling "yes" or "no". Each of these statements refers to your previous academic major.

1. I was never very serious about my original choice of major--it was sort of a spur-of-the-moment decision. Yes No

2. I spent much time and effort deciding on my original major, but it was still a very tentative choice--I wasn't very sure of it even though I really tried to reach a sound decision. Yes No

3. I found that the content of many courses required in my original major was quite different from what I had expected--the courses didn't really interest me. Yes No

4. I found that many courses in my original major were much more difficult than I had expected--I didn't have the right preparation for them or I didn't have the kinds of abilities necessary for doing good work in them. Yes No

5. As I learned about future jobs related to my original major I found that they didn't really appeal to me--my knowledge about the jobs, at the time I chose that major, was incomplete or unsatisfactory. Yes No

6. My original major was satisfactory, but after being in college a while I learned about another major that suits me better--I did not have enough information about my present major at the time I entered E.I.U. Yes No

7. Because I started in another major, I feel that I wasted time in taking courses which were of little benefit to me personally or vocationally--the change of major caused considerable inefficiency in my academic program: Yes No

8. I am reasonably well satisfied with my present major. Yes No

9. Any other reasons or comments. (We especially welcome any recommendations that you might be able to make as a result of your own personal experience.)

Thank you very much for your help.

APPENDIX C

CHARACTERISTICS OF THE DATA COLLECTION AND SAMPLE POPULATION

	Number of Professors Contacted in this Major	Number of Classes in this Major in which Questionnaires were Distributed	Number of Students Completing Questionnaires in these Classes[10]	Number of Students Completing Usable Questionnaires in this Major[10]
BUSINESS (15.8% of Total Sample)				
ACCOUNTING	2	0	0	22
BUS. ADMINISTRATION	0	0	0	5
FINANCE	0	0	0	6
MANAGEMENT	4	1	10	25
MARKETING	2	2	37	25
			47	83
EDUCATION (22.7% of Total Sample)				
BUSINESS EDUCATION	0	0	0	9
ELEMENTARY EDUCATION	4	3	58	68
SECONDARY EDUCATION	2	2	33	5
SPECIAL EDUCATION	0	0	0	30
SPPECH PATHOLOGY	2	2	34	9
			125	121
SCIENCS (13.2% of Total Sample)				
BOTANY	2	0	0	6
CHEMISTRY	3	1	15	11
ENVIRONMENTAL BIOLOGY	0	0	0	2
GEOLOGY AND GEOGRAPHY	2	0	0	6

[10]The final two columns may appear somewhat confusing. The third column shows the number of students who completed questionnaires in the various classes (for example, 10 persons completed questionnaires in management classes). The fourth column indicates the actual number of respondents in our sample who were majoring in the different fields (for example, although no students completed questionnaires in accounting classes, 22 of our total number of 524 students were accounting majors).

	Number of Professors Contacted in this Major	Number of Classes in this Major in which Questionnaires were Distributed	Number of Students Completing Questionnaires in these Classes	Number of Students Completing Usable Questionnaires in this Major
LIFE SCIENCE	2	0	0	4
MATHEMATICS	5	6	50	20
MEDICAL TECHNOLOGY	0	0	0	5
PHYSICS	4	0	0	3
ZOOLOGY	4	1	19	12
			84	69
SOCIAL SCIENCES (16.2% of Total Sample)				
ECONOMICS	3	1	7	5
POLITICAL SCIENCE	4	2	19	25
PSYCHOLOGY	5	4	89	32
SOCIOLOGY	3	3	67	17
SOCIAL SCIENCE	0	0	0	5
			182	84
HUMANITIES (17.9% of Total Sample)				
ART	4	1	5	10
ENGLISH	5	2	27	26
FOREIGN LANGUAGES	4	2	13	15
HISTORY	4	4	80	32
MUSIC	0	0	0	11
PHILOSOPHY	2	0	0	0
THEATRE ARTS	2	0	0	0
			125	94

	Number of Professors Contacted in this Major	Number of Classes in this Major in which Questionnaires were Distributed	Number of Students Completing Questionnaires in these Classes	Number of Students Completing Usable Questionnaires in this Major
UNCLASSIFIED MAJORS				
SPEECH	5	1	17	4
PHYSICAL EDUCATION	0	0	0	20
RECREATION	0	0	0	3
HOME ECONOMICS	0	0	0	22
INDUSTRIAL ARTS	0	0	0	5
ALL OTHERS (less than three persons in each particular major)	0	0	0	20
			17	74

TOTAL NUMBER OF PROFESSORS CONTACTED= 79

TOTAL NUMBER OF CLASSES IN WHICH QUESTIONNAIRES WERE DISTRIBUTED= 38

TOTAL NUMBER OF STUDENTS COMPLETING QUESTIONNAIRES= 580

FOREIGN STUDENTS= 6

GRADUATE STUDENTS= 32

INCOMPLETE QUESTIONNAIRES= 18

56

TOTAL NUMBER OF STUDENTS COMPLETING USABLE QUESTIONNAIRES= 524

APPENDIX D

CHARACTERISTICS OF THE SAMPLE POPULATION

1. SEX (Total Responses= 524)

   Males= 226 (43%) Females= 298 (57%)

2. AGE (Total Responses= 523)

   17 to 20= 241 (46%) 21 to 24= 214 (41%) 25 or more= 68 (13%)

3. YEAR IN COLLEGE (Total Responses= 524)

   Freshmen= 27 (5%) Sophomores= 79 (15%) Juniors= 174 (33%)
   Seniors= 244 (47%)

4. RELIGIOUS PREFERENCE (Total Responses= 521)

   Protestant= 267 (51%) Catholic= 128 (24%) Jewish= 2 (.5%)
   Other= 44 (8.5%) None= 80 (16%)

5. SOCIAL CLASS BACKGROUND (Total Responses= 474)

   Low= 229 (44%) Lower Middle= 134 (26%) Upper Middle= 80 (15%)
   Upper= 31 (6%)

6. POPULATION OF HOMETOWN (Total Responses= 522)

   Farm= 51 (10%) Less than 2500= 99 (19%) 2500 to 25,000= 220 (42%)
   25,000 to 100,000= 89 (17%) More than 100,000= 63 (12%)

7. POPULATION OF HIGH SCHOOL (Total Responses= 522)

   Less than 200= 57 (11%) 200 to 500= 143 (27%)
   500 to 1500= 185 (35%) 1500 to 3000= 97 (19%)
   More than 3000= 40 (8%)

8. MARITAL STATUS (Total Responses= 524)

   Single= 396 (76%) Married with no children= 77 (15%)
   Married with children= 51 (9%)

9. RESIDENCE IN COLLEGE (Total Responses= 523)

   Fraternity or Sorority house= 22 (4%) Off-campus room or
   Apartment= 224 (43%) Dormitory or other campus housing= 168 (32%)
   Parent's home= 46 (9%) Other= 63 (12%)

10. NUMBER OF ACTIVITIES UNRELATED TO PRESENT ACADEMIC MAJOR (Total Responses= 523)

None= 290 (55%) One= 178 (34%) More than two= 55 (11%)

11. OCCUPATIONAL VALUES (Total Responses= 524)

Money= 86 (16%) Original= 73 (14%) People= 285 (55%)

None of the above= 80 (15%)

12. NUMBER OF PREVIOUS MAJOR CHANGES (Total Responses= 524)

None= 296 (56%) One= 165 (32%) Two or more= 63 (12%)

13. TYPE OF PREVIOUS CHANGE IN MAJOR (Total Responses= 524)

None= 296 (56%) Related Change= 103 (20%)

Unrelated Change= 124 (24%)

14. SIZE OF PRESENT MAJOR (Total Responses= 524)

Small= 90 (17%) Medium= 112 (21%) Large= 155 (30%)

Very Large= 166 (32%)

15. QUARTERS IN PRESENT MAJOR (Total Responses= 522)

Less than six= 221 (44%) Six or more= 301 (56%)

16. COURSES IN PRESENT MAJOR (Total Responses= 517)

Less than eight= 186 (36%) Eight or more= 331 (64%)

17. PLANS TO CHANGE MAJORS (Total Responses= 524)

No plans= 462 (88%) Some plans= 62 (12%)

18. ATTENDANCE AT PREVIOUS COLLEGE OR JUNIOR COLLEGE (Total Responses= 523)

Transfer student= 169 (32%) Permanent E. I. U. student= 351 (68%)

19. CUMULATIVE GRADE POINT AVERAGE (Total Responses= 477)

Less than 2.9= 253 (53%) 2.9 or more= 224 (47%)

20. PERCEIVED PRESSURES TO CHOOSE A PARTICULAR MAJOR (Total Respons (Total Responses= 524)

Agree or undecided= 50 (10%) Disagree= 474 (90%)

21. IDENTIFICATION WITH MAJOR SCORE (Total Responses= 524)

Low (less than 37)= 244 (47%) High (37 or more)= 280 (53%)

22. STRENGTH OF SELF-CONCEPT (Total Responses= 524)

Weak (less than 21)= 265 (51%) Strong (21 or more)= 259 (49%)

APPENDIX E

PROCEDURE FOR REGROUPING THE DATA

In most cases, initial analysis of the data proceeded in terms of the largest reasonable number of categories for each of the different variables. For example, the relationship between experience in major and identification with major was originally analyzed in a four-by-three table (see Table 24). The main purpose for examining the data in this manner was to determine the form of the relationships. Adamek and Goudy (1966: 188), for example, suggested that future studies might attempt to determine whether identification with major increases in a linear fashion or whether there might be a low ebb in identification for students at approximately the same time in their college careers. By examining this relationship in the larger table, we were able to determine that for our sample of students identification with major increases at a fairly constant rate with no significant interruptions in this process.

After this initial analysis of the form of the various relationships, the data were recoded into two or three groups depending on the type of variable involved. As Lipset (1970: 83) observes, it is sometimes possible to collapse the data at points which are advantageous to the hypotheses, rather than at others. The data in the present study were regrouped independently of the hypotheses under investigation (on the basis of the numbers in each category after collapsing). It should be pointed out that regrouping the data into larger categories often has the effect

Table 24

THE EFFECT OF REGROUPING ON THE RELATIONSHIP BETWEEN EXPERIENCE IN MAJOR AND IDENTIFICATION WITH MAJOR:

(A) THE RELATIONSHIP AS PRESENTED IN A THREE-BY-FOUR TABLE
(B) THE RELATIONSHIP AS PRESENTED IN A THREE-BY-TWO TABLE
(C) THE RELATIONSHIP AS PRESENTED IN A TWO-BY-TWO TABLE

IDENTIFICATION WITH MAJOR	TOTAL ASSOCIATION Courses in Major Less than Eight	Eight to Sixteen	More than Sixteen	TOTAL ASSOCIATION Courses in Major Less than Eight	Eight to Sixteen	More than Sixteen	TOTAL ASSOCIATION Courses in Major Less than Eight	Eight or More	
Very Low	13% (24)	9% (18)	10% (12)						
Medium Low	34 (63)	26 (53)	21 (26)	58% (108)	41% (84)	38% (48)	58% (108)	40% (132)	
Medium High	40 (75)	40 (81)	43 (54)						
Very High	13 (24)	25 (53)	26 (34)	42 (78)	59% (121)	62 (78)	42 (78)	60 (199)	
	100% (186)	100% (205)	100% (126)	100% (186)	100% (205)	100% (126)	100% (186)	100% (331)	Total N= 517
	Total N= 517			Total N=517					
ASSOCIATION LEVEL	Gamma= .206			Gamma= .270			Gamma= .352		
SIGNIFICANCE LEVEL	Chi-Square= 17.033 P < .01			Chi-Square= 16.094 P < .001			Chi-Square= 15.834 P < .001		

Table 25

IDENTIFICATION WITH PRESENT MAJOR AND PLANS TO CHANGE MAJOR:
(A) THE RELATIONSHIP AS PRESENTED IN A TWO-BY-FIVE TABLE
(B) THE RELATIONSHIP AS PRESENTED IN A TWO-BY-TWO TABLE

TYPE OF FUTURE CHANGE	Total Sample Identification with Major Low	 High	Total Sample Identification with Major Low	 High
No Plans to Change...	84% (204)	92% (258)	No Plans to Change:	
			84% (204)	92% (258)
Considering a Related Change.....	6 (15)	5 (15)		
Planning a Related Change.....	3 (8)	0 (0)	Indefinite to Definite Plans to Change Major:	
Considering an Unrelated Change.....	5 (13)	3 (7)	16 (40)	8 (22)
Planning an Unrelated Change.....	2 (4)	0 (0)		
	100% (244)	100% (280)	100% (244)	100% (280)
			Total N= 524	
	Gamma= -.395 Chi-Square= 17.722 P < .005		Gamma= -.394 Chi-Square= 9.107 P < .005	

of increasing the magnitude of the correlations (see Schuessler, 1971: 243). As Table 24 demonstrates, the strength of the relationship between experience in major and identification with major systematically increases from .21 in the four-by-three table to a correlation coefficient of .27 in the two-by-three table and finally to a gamma of .35 in the two-by-two table. While this incremental effect occurs in the majority of cases, at other times it almost totally disappears. Table 25 shows that the inverse relationship between identification with major and plans to change majors remains stable regardless of the regrouping method. Although some of the association measurements reported in our analysis of the

data may be slightly inflated as a result of this regrouping procedure, we believe that the advantages of presenting and interpreting the data in the smaller tables are sufficient to justify the method used in this study. Special remarks have been made in those cases in which the reported relationships may have been seriously biased by our procedure for presenting the findings of this research project.

APPENDIX F

ACADEMIC ACHIEVEMENT AND RELATED FINDINGS

Although academic achievement was not one of the major concerns of this study, our analysis indicated that this variable was significantly related to some of the other variables in our study. Table 26-A shows that academic achievement and identification with major were significantly correlated at the .01 level. Our data do differ somewhat from the findings of Davis (1964: 40) in respect to the relationship between occupational values and academic achievment. Davis found that persons who preferred future careers which provide opportunities to be original and creative had the highest levels of academic achievement (using grade point average as an index), while our study indicates that students who are people-oriented are somehat more likely to report high grade point averages than originality-oriented students and much more likely than persons who express a desire for making a lot of money (Table 26-B). In respect to social class background, however, both the study by Davis and the present thesis project found that social class background was positively associated with academic achievement. For our sample, 54% of the students from higher class backgrounds had relatively high grade point averages compared with 42% of those persons from lower class backgrounds. Table 27 supports many previous research studies which have shown that students with high grade point averages are less likely to change majors than other students.

Table 26

ACADEMIC ACHIEVEMENT AND RELATED VARIABLES:

(A) RELATIONSHIP BETWEEN IDENTIFICATION WITH MAJOR AND ACADEMIC ACHIEVEMENT
(B) RELATIONSHIP BETWEEN OCCUPATIONAL VALUES AND ACADEMIC ACHIEVEMENT
(C) RELATIONSHIP BETWEEN SOCIAL CLASS BACKGROUND AND ACADEMIC ACHIEVEMENT

	(A) TOTAL ASSOCIATION		(B) TOTAL ASSOCIATION			(C) TOTAL ASSOCIATION	
GRADE POINT AVERAGE	Identification with Major		Occupational Values			Social Class Background	
	Low	High	Money	Original	People	Low	High
Low	60% (130)	48% (123)	65% (50)	55% (36)	49% (131)	58% (123)	46% (102)
High	40 (88)	52 (136)	35 (27)	45 (29)	51 (136)	42 (90)	54 (121)
	100% (218)	100% (259)	100% (77)	100% (65)	100% (267)	100% (213)	100% (223)
	Total N= 477		Total N= 409			Total N= 436	
ASSOCIATION LEVEL	Gamma= .241		Gamma= .226			Gamma= .237	
SIGNIFICANCE LEVEL	Chi-Square= 7.007 P < .01		Chi-Square= 6.213 P < .025			Chi-Square= 6.288 P < .025	

Table 27

ACADEMIC ACHIEVEMNT AND CHANGE OF MAJORS:

(A) GRADE POINT AVERAGE AND NUMBER OF PREVIOUS CHANGES
(B) GRADE POINT AVERAGE AND THE TYPE OF PREVIOUS CHANGE
(C) GRADE POINT AVERAGE AND PLANS TO CHANGE MAJORS

	(A) TOTAL ASSOCIATION			(B) TOTAL ASSOCIATION			(C) TOTAL ASSOCIATION	
GRADE POINT AVERAGE	Number of Past Changes			Type of Past Change			Plans to Change Majors	
	None	One	More than One	None	Related Change	Unrelated Change	No Plans	Indefinite to Definite Plans
Low	48% (131)	56% (81)	71% (41)	48% (131)	62% (59)	58% (63)	52% (217)	64% (36)
High	52 (140)	44 (67)	29% (17)	52 (140)	38% (38)	42% (46)	48 (204)	36 (20)
	100% (271)	100% (148)	100% (58)	100% (271)	100% (97)	100% (109)	100% (421)	100% (56)
	Total N= 477			Total N= 477			Total N= 477	
ASSOCIATION LEVEL	Gamma= -.231			Gamma= -.186			Gamma= -.257	
SIGNIFICANCE LEVEL	Chi-Square= 9.287 P<.005			Chi-Square= 6.926 P < .01			Chi-Squa e= 3.222 P< .10	

APPENDIX G

STUDENT EXPLANATIONS FOR CHANGING MAJORS

The questionnaire also included eight items concerned with some of the reasons which students frequently give to explain their decision to change majors. These statements were taken from the study of Michigan State University students by Pierson (1962). His analysis of responses to these statements was based on a nonrandom sample of 403 senior students who had previously changed majors during their college careers. Seventy-two percent of his respondents were males, and 18% were transfer students. Students who entered the University without declaring a major were excluded from this study. Pierson reports that 30% of the students graduating from Michigan State University had previously changed majors at least one time since they entered college.

These various characteristics of the Michigan State University respondents contrast rather sharply with our sample of 524 students attending summer school at Eastern Illinois University in 1973. Fifty-seven percent of our respondents were females, and 32% were transfer students. Our sample included students for all four years of college (although only 20% of our respondents were freshmen and sophomores). Of the total 524 students, only the 214 students who had previously changed majors (44% of the total sample) responded to the statements concerned with reasons for switching majors.

Table 28

PERCENTAGE DISTRIBUTION OF RESPONSES TO STATEMENTS ABOUT REASONS FOR CHANGING MAJORS

	EASTERN ILL. UNIVERSITY (N=214)		MICHIGAN ST. UNIVERSITY (N=403)	
1. I was never very serious about my original choice of major--it was sort of a spur-of-the-moment decision.	Yes (43%)	No (57%)	Yes (16%)	No (84%)
2. I spent much time and effort deciding on my original major, but it was still a very tentative choice--I wasn't very sure of it even though I tried to reach a sound decision.	Yes (50%)	No (50%)	Yes (47%)	No (53%)
3. I found that the content of many courses required in my original major was quite different from what I had expected--they didn't really interest me.	Yes (53%)	No (47%)	Yes (49%)	No (51%)
4. I found that many courses in my original major were much more diffiuclt than I had expected--I didn't have the right preparation for them or the kinds of abilities necessary for doing good work in them.	Yes (36%)	No (64%)	Yes (30%)	No (70%)
5. As I learned about future jobs related to my original major I found that they didn't appeal to me--my knowledge about the jobs, at the time I chose that major, was incomplete.	Yes (52%)	No (48%)	Yes (43%)	No (57%)
6. My original major was satisfactory, but after being in college awhile I learned about another major that suits me better--I did not have enough information about my present major at the time I entered college.	Yes (58%)	No (42%)	Yes (68%)	No (32%)
7. Because I started in another major, I feel that I wasted time in taking courses which were of little benefit to me personally or vocationally--the change of majors caused considerable inefficiency in my academic program.	Yes (24%)	No (76%)	Yes (15%)	No (85%)
8. I am reasonably well satisfied with my present major.	Yes (94%)	No (6%)	Yes (95%)	No (5%)

We have enumerated the major characteristics of the two samples simply to indicate that these students differ in nearly every respect. Even though we recognize that a comparison between these two samples is undoubtedly biased by the important distinctions between these two groups, such a comparison will at least serve as a very crude basis for judging possible differences between these two universities. Table 28 presents the percentage distribution of responses to each of these statements for Eastern Illinois University and Michigan State University students.

The largest percentage difference among the various statements is found in item one. Forty-three percent of the students in our sample indicate that they made a "spur-of-the-moment" decision when they declared their original majors, while only 16% of the students in Pierson's study agreed with this statement. As Table 29 shows, 51% of the males in our sample report that their original decision was a very indefinite one compared with only 33% of the female students.

Responses for statements three to six are fairly similar for the two groups of students. The fairly high rate of agreement with these statements indicates that some of the primary reasons for changing majors are the lack of information about (1) the content and difficulty of the courses in their original majors, (2) the type of occupations and careers available in these fields, and (3) the extent of other curricular opportunities available in college.

Table 29

RESPONSES TO STATEMENT ONE: "I was never very serious about my original choice of major--it was sort of a spur-of-the moment decision."

(A) TOTAL PERCENTAGE DISTRIBUTION
(B) PERCENTAGE DISTRIBUTION BY SEX

RESPONSE TO STATEMENT ONE	Total Sample (Persons who previously changed majors only)	Total Sample Sex Males	 Females
Yes	43% (93)	51% (59)	33% (34)
No	57 (126)	49 (56)	67 (70)
	100% (219)	100% (115)	100% (104)
		Total N=219	

Chi-Square= 7.734
P < .01

Responses to statement seven show that 24% of the students in our sample reported that the change of majors had caused considerable problems in their academic program. Agreement with this item was somewhat lower among students at Michigan State University. Our analysis further indicates that persons who have made more than one major change are more likely to agree with this statement. As Table 30 shows, 37% of the students in our sample who had changed majors two or more times felt that the change had created considerable difficulties in their educational program.

Although we are somewhat reluctant to draw any firm conclusions from a comparison of these two samples of undergradu-

ate students, our analysis does suggest two distinct trends in the data: (1) Eastern Illinois University students are more likely to indicate that they were not very definite about their academic plans when they declared their original major; (2) and Eastern students are also more likely to indicate concern over some of the difficulties they encountered by changing to another field. Unfortunately, however, our analysis is unable to determine whether these variations are the result of different university policies for changing majors, different counselling methods, or simply the result of different types of students.

Table 30

RESPONSES TO STATEMENT SEVEN: "Because I started in another major, I feel that I wasted time in taking many courses which were of little benefit to me personally or vocationally--the change of major caused considerable inefficiency in my academic program."
(A) TOTAL PERCENTAGE DISTRIBUTION
(B) PERCENTAGE DISTRIBUTION BY NUMBER OF PREVIOUS CHANGES

RESPONSE TO STATEMENT SEVEN	(A) Total Sample (Persons who previously changed majors only)	(B) Total Sample Number of Previous Changes	
		One Previous Change	More than One Previous Change
Yes	24% (52)	19% (30)	37% (22)
No	76 (162)	81 (125)	63 (37)
	100% (214)	100% (155)	100% (59)
		Total N= 214	

Chi-Square= 7.471
$P < .01$

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